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Drastic French Rail-Road Agreement

THE vigorous campaign, which has been intensified of late, for the restriction of production to available purchasing power is about to bear its first fruits in the transportation industry in the north of France, where a drastic closing down of branch lines and minor main line stations has been arranged. We commented in our issue of April 27 on the measures then proposed by the French Government for dealing with the railway deficit, and now, on page 946, will be found an article from our Paris correspondent describing the first instalment of their application. While admiring the care and thoroughness displayed by Monsieur Dautry and others concerned in the working out of the new transport restrictions, we must reiterate our sorrow that France should be leading the way in cutting down facilities rather than in devising means of enabling her people to make fuller use of them. The scheme which has been drawn up for the Rouen-Havre-Dieppe region has, however, undoubted points of advantage. It will make possible faster main line services to principal towns, and, if the road transport side is developed progressively, the inconvenience of the comparatively few will be balanced by the benefit of the many whose business takes them to places remote from stations. The arrangement will, of course, not contribute directly to the solution of the "unemployment problem."

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Railways and Illumination

Two years ago there appeared in our pages a series of articles dealing with the illumination of railway stations, yards, night works, and so on. When the series came to a close the field had been covered fairly comprehensively, but in the interim development has been rapid, and an entirely new source of illumination has been evolved. The latter, known as the electric gas discharge lamp, is now marketed, with differences, under several trade names, and two kinds are briefly described elsewhere in this issue together with other appliances having an obvious sphere of usefulness on the railways. Relating more particularly to fittings for stations, our article is the second of a new series, the first of which, reiterating general principles, appeared in our issue for April 6. The new articles will help to reveal once more the great distance between the present science of illumination and the crude strivings of three or four score years ago. Among railway engineers there must be many who will not need reminding that a large percentage of railway lamp posts took root in the dark mid-Victorian age. We feel however, that in calling attention to the need for reheading and respacing or entirely replacing such posts, and in describing suitable modifications, we are indicating a reform for which insufficient money is being voted even in these enlightened times.

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The Week's Traffics

The increase shown throughout in the traffics of the four group companies is due largely to the fact that the comparison is with an ordinary week of 1933, whereas the present figures include receipts for the Whitsun exodus. Monday in all cases and Sunday in that of the L.N.E.R. are excepted. Comparison with the pre-Whitsun returns of 1933, however, show a decline of £18,000 for the Southern Railway and the very moderate advance of £2,000 for the Great Western. Increases of £46,000 and £44,000 for the L.M.S.R. and L.N.E.R. respectively were more satisfactory, and results generally exceeded many Stock Exchange estimates. London Transport takings for the week were £545,300, making an aggregate for 46 weeks of £23,205,000. Great Southern Railways (Ireland) receipts have advanced by another £3,639 to £38,765.

	20th Week				Inc. or dec.	
	Pass &c.	Goods, &c.	Coal, &c.	Total.	Year to date	
	£	£	£	£	£	%
L.M.S.R. ..	+ 167,000	+ 25,000	+ 16,000	+ 208,000	+ 1,329,000	+ 6·42
L.N.E.R. ..	+ 77,000	+ 14,000	+ 33,000	+ 124,000	+ 1,339,000	+ 8·93
G.W.R. ..	+ 56,000	+ 8,000	+ 2,000	+ 66,000	+ 404,000	+ 4·67
S.R... ..	+ 83,000	+ 2,500	+ 2,500	+ 88,000	+ 231,000	+ 3·45
		*	*	*	*	

The Law on the Line

The Austrian authorities are apparently persuaded that in so far as a knowledge of railway operation is concerned, Justice is blind and the Law an ass. Recently, it is reported, one hundred magistrates were accordingly sent by special train from Vienna to Linz, the object of the journey being to give them first hand acquaintance with railway working. On the way, the Bench retired in rotation to the footplate, where in twos and threes it gazed with the reverence born of compulsion at the mysteries of engine driving. Linz held further trials for the unmechanically minded, for here the travellers were made to inspect all parts of the railway station and study its technical arrangements. We suppose that there were adequate motives behind this withdrawal from service of sufficient officers to stock some twenty petty sessions, but it is doubtful whether appreciation of the railway can be sown and flourish under conditions which seem to have differed little in their formality from those prevailing at the court. It will be interesting, however, to see if the system is extended to higher walks of legal life and to note the effect when a learned judge, hot from the footplate, remarks: "What *is* a superheater?"

B.S.S.R.S.

Apparently our recent editorial comment upon the railway sandwich has caught the eye of the lay press, and reporters have interviewed officials in the railway catering departments. From the reported replies of these officials we gather that they are tired of the railway sandwich joke, and a sad sigh sounds in their remarks. "None of our sandwiches can be more than six hours old at the very most." "Cut specially for each period of the day." Thus say the catering departments. Our criticism, however, was not directed to the time lag between cutting and selling the sandwich, but to the varying quantity and quality of its interior, differing from day to day and from railway to railway. We do not doubt that the actual cutting is recent in all cases, but to say that you have just cut down some aged oak trees does not ensure that the wood is of an equally high standard in each, and that is our point. We press for uniformity of excellence throughout the British Isles; indeed we feel inclined to suggest the adoption of a British Standard Specification for Railway Sandwiches, and (if invited) we would gladly sit upon the advisory committee. We can at least be sure of unanimity upon one ingredient: "the British public likes mustard."

* * * *

The Royal Mail Does Take to Flight

A fortnight ago we suggested in these columns the likelihood of the Royal Mail finding in the aeroplane a new regular conveyor for its internal services. Our suggestion has not taken long to become fact for, as we went to press last week, it was announced that the Postmaster General had granted a contract to Highland Airways Limited for the carrying of the Royal Mail as an ordinary public service between Inverness and Kirkwall, in the Orkneys. The new arrangement comes into operation on May 29, and displaces the services at present provided by the L.M.S.R. between Inverness and Wick, and the North of Scotland, Orkney and Shetland Steam Navigation Co. Ltd. between Wick and Kirkwall. Although the ensuing loss to the railway company can be but small, it is significant of what is likely to happen upon a much larger scale in the near future. The railways have been quick to realise the commercial possibilities of internal air lines, but they will still have to watch very carefully what is going on over their heads. Perhaps they would do well to join those stalwarts of liberty who have ever emblazoned before their minds' eyes the words "eternal vigilance."

* * * *

Disabled French Railwaymen's Home

M. Flandin presided recently at the inauguration ceremony of a home for disabled French railway workers at Etrembières in the department of Haute-Savoie. This institution is intended to provide injured railwaymen with medical care and physical training with a view to enabling them to resume their duties when fit, or to find some other suitable occupation, if possible. The home has been founded by the society known as "La Protection Mutuelle des Agents des Chemins de Fer de France et des Colonies" under the direction of M. Louis Olivier, its President, a former railwayman, who has won a reputation as a promoter of railway welfare schemes. The institution has also received aid from the railways and from State grants. The spacious building, situated at an altitude of 1,500 ft., contains 150 beds and is soon to have 200. It stands in a park of 15 acres, commanding a splendid view of the Alps and Jura mountains and overlooks the valley leading to Geneva. M. Flandin was accompanied by MM. Boutet, Director General of Railways and Roads; Raoul Dautry, General Manager of the State Railways; Riboud, General Manager of the Est, and prominent officials of other companies, as well as by 600 railwaymen, who travelled in the special train from Paris. The ceremony began with the unveiling of a bust of M. Louis Olivier, placed over the entrance gate. The party subsequently motored up to the restaurant at the Téléferique du Salève, situated at an altitude of 5,000 ft. on a mountain spur dominating the Lake of Geneva and facing Mont Blanc. After a banquet of 650 covers had been served, the Minister of Public Works distributed a number of medals for meritorious services.

* * * *

The Development of Containers

Although the container is approximately as old as the railway, its development suffered an early check and was not resumed until a few years ago. Its disappearance and reappearance have coincided with the decline and rebirth of road competition. When the train was a novelty, it was obliged to woo public favour by providing facilities similar to those obtainable on the roads. Door to door transport is a convenient feature of the highway which it was thought desirable to reproduce. The early railways took a sweeping view of the situation and extended the container system both to living and inanimate cargoes. The family coach that was driven to the station and transferred to a special truck was in some ways the highest expression of container transport. The railways have not attempted to restore this system to-day, but the news article on road-rail containers elsewhere in this issue emphasises the progress that has been made with door to door goods traffic in less than a year. The wider development of containers for special forms of freight is as convincing an indication as are the quantities owned and under construction of the faith placed in the possibilities of this form of conveyance by the four group railways.

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Containers in Spain

The railways in Spain are not having an enviable time just now, with constant political disturbances and local strikes. Nevertheless, they are doing everything they can to consolidate and improve their position. Road transport is developing rapidly and, as in other countries, it is incumbent on the railways to adapt themselves to changing conditions. Various measures have already been taken to that end, but so far the container system has not received anything like the attention which has been given to it elsewhere on the Continent. In Germany, for instance, the subject has been very closely studied and several types of container are in use. However, a beginning has been made this year in Spain with containers supplied by the Cave firm to the design of C. Weiland. Regular services have been established between Madrid and Barcelona. Six containers can be accommodated on an ordinary freight wagon, the load in each being 1,500 kg. Two men can easily move one container. For carriage to and from the railway, a number of motor lorries equipped with hoisting platforms, also on the Weiland system, have been put into operation. It is stated that the firms served by the new container arrangements are satisfied with them and have found them to increase the efficiency of their business.

* * * *

The Etat Railcar Vogue

It is on the State railway system in France, under the energetic management of M. Dautry, that the use of the railcar has been developed to the greatest extent so far. The French summer time-tables reveal further remarkable

increases in the use of these handy *autorails*, both as long-distance *rapides*, for high-speed short-distance town-to-town services, and to provide additional stopping trains on various branches. The Bugatti railcar, which during the spring has been providing a supplementary service between Paris and Havre, will return in July to the Paris-Deauville service on which it worked last summer. With another similar car, two services in each direction will be provided daily, covering the 136·2 miles in 2 hr. at 68·1 m.p.h. average. A Micheline railcar is to operate a new non-stop service over the 154·6 miles between Paris and the spa of Bagnoles-de-l'Orne, covered in 188 min., as compared with a best ordinary train time of 3 hr. 51 min. A new express railcar service will begin to run in July between Dieppe and Rouen, making five double journeys daily, of which the quickest will cover the 37·9 miles in 45 min. But the fastest of these local *autorail* services are those between Lisieux and Deauville, which cover the 18·6 miles in 20 min., inclusive of a one-minute stop at Pont l'Evêque, or in no more than 25 min. when six intermediate stops are made; these cars are responsible for seven workings each way daily. In many other directions the railcar is being put by the Etat management to valuable use.

* * * *

Accidents at Level Crossings

In a recent editorial note on road accidents in America, we commented upon the fact that the class of mishap showing the most marked tendency to increase is that occurring at level crossings. The Erie Railroad has lately published a report on the 181 accidents of this nature occurring on its system during 1933. From extracts published in *Railroad Data* it appears that not only is the standard of caution among motorists deteriorating, but that road users are slow in learning to comply with the regulations imposed by the railways for their safety. In support of these deductions it may be quoted that 52 of the accidents on the Erie system were due to motor vehicles crashing into the sides of trains. In many of the cases where trains struck cars crossing their path, the accident could have been avoided had not the motorist become confused on realising that he had overlooked a danger indication and inadvertently stopped while crossing the metals. There were ninety-eight accidents at level crossings where special signalling methods are in force to warn motorists of approaching trains. In forty-eight instances motor drivers entirely disregarded watchmen's signals. The Erie Railroad has reduced level-crossing accidents by 24 per cent. in a year, and a fitting compliment to its energy would surely be evidence of better co-operation on the part of road users.

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Keeping Time Under Difficulties

For some time past the German State Railway has been carrying out an intensive programme of realignment in preparation for the ambitious main line accelerations which came into operation on May 15 with the inauguration of the summer time-tables. The programme will still take time to complete, for it is designed not only for the accelerations just mentioned, but also in anticipation of the still faster services which are to be run on many of the principal trunk routes next year when the new high speed railcar units are ready to operate. A correspondent, who has recently made several long journeys in Germany, tells us that punctuality is being maintained at its normally high standard despite the very numerous speed restrictions necessitated by the realignment works. For example, on a recent journey to Munich and back the 172¼ miles between Wurzburg and Munich were covered non-stop in 210 minutes despite about 17 minutes lost due to permanent way slacks. On the return journey the net time to Wurzburg was only 183½ minutes for the 172¼ miles, and Emmerich, on the German-Dutch frontier, was eventually reached exactly on time, although numerous permanent way slacks were punctiliously observed on the way. After each slack, time was made up and the schedule regained as quickly as possible, but at no point on the whole journey outward and back did the speed exceed 74 m.p.h.

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Excursion Flyers

Some of the fastest running times ever yet scheduled over the Great Eastern Section of the L.N.E.R. figure in the summer programme of the Eastern Belle, the all-Pullman cheap day excursion train which makes return journeys from London to a variety of East Coast resorts. On the days of running to Aldeburgh, Yarmouth, Lowestoft, Cromer, and Sheringham, Ipswich is passed in 79 min. from Liverpool Street, whereas the best start-to-stop time figuring in the ordinary time-table is 85 min. in the down direction and 80 min. coming up. Between London and Cromer the 2 hr. 55 min. timing made by the Norfolk Coast Express before the war is reintroduced, notwithstanding calls at both Wroxham and North Walsham; the 93¾ miles from Shenfield to Trowse are allowed only 99 min., and the 90½ miles from Tivetshall to Chadwell Heath, on the up journey, 97 min., representing average speeds of 56·8 and 56·0 m.p.h. respectively over a difficult road, with three service slacks, one very severe, intermediately. Times of approximately 2 hr. in each direction between London and Felixstowe, 2¼ hr. to and from Aldeburgh, 2½ hr. to and from Lowestoft and Yarmouth, and 3 hr. 10 to 15 min. to and from Sheringham are in several cases better than any ordinary timing over the same routes; and on the timings of the Cromer and Sheringham trains Norwich might be reached in 2 hr. 10 min. from Liverpool Street, as compared with the existing " best " of 2 hr. 25 min. The full-fare passenger will be getting envious!

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A New York–Chicago Speed-up

When the overall times of the Twentieth Century Limited and the Broadway Limited expresses of the New York Central Lines and the Pennsylvania Railroad respectively were reduced in 1932 from 20 hr. to 18 hr. between New York and Chicago, the extra fares charged for the use of all the other fast trains operating over these two routes were abolished. In order to make a clear distinction in the relative service afforded, however, so that the $10 surcharge by the Century and the Broadway might be justified, the overall times of the non-supplement expresses were fixed at a general level of 21 hr., which still gave the passenger transit over this long distance at an average speed of 45 m.p.h., stops included. The progress of American acceleration in these days is so rapid, however, that the 21-hr. level of timing has now been left far behind. For example, the Golden Arrow of the Pennsylvania has been accelerated to make the run in just over 19 hr., the Manhattan Limited in 19¾ hr., and the Pennsylvania Limited, newly speeded up by 75 min. eastbound and 25 min. westbound, in 20 hr. Similar improvements are taking place over the New York Central main line. Last year the Twentieth Century Limited and the Broadway Limited were accelerated to make their through journeys in 17⅝ hr. both ways, and, as described in THE RAILWAY GAZETTE of December 15, 1933, thereby became two of the four fastest trains in the world; but it looks as if the ordinary services will presently challenge their supremacy.

Agreed Charge for Live Pigs

APART from Woolworth & Co.'s arrangement, probably one of the most interesting of the applications so far made by the railway companies to the Railway Rates Tribunal for the approval of an agreed charge was that relative to the carriage of live pigs which the tribunal sanctioned recently. This application asked for the approval of an agreement between the four group railway companies and the London Passenger Transport Board on the one hand, and C. & T. Harris (Calne) Limited on the other. The same agreement, however, was made with a large number of registered curers of bacon and, in effect, the agreements covered something like 700 different traders dealing with live pigs. The reason for this somewhat unusual application lies in the Agricultural Marketing Act of 1931, which provided for the making of schemes for the regulation and marketing of pigs and pig products. By virtue of this Act the Minister of Agriculture issued in 1933 two orders, the Pigs Marketing Scheme (Approval) Order and the Bacon Marketing Scheme (Approval) Order, which provided for the conversion of live pigs into bacon, and, incidentally, the transport of the pigs from the farms to the various bacon factories. Under these schemes, moreover, pig and bacon marketing boards were set up, and it was laid down that every curer of bacon who desired to continue selling bacon, with the exception of certain very small curers, would be required to register.

After going exhaustively into the matter, it was realised by those operating these schemes that a uniform transport charge per pig was highly desirable, if not vital to their successful operation. Lengthy negotiations then took place between the railway companies, the marketing boards and the curers concerned, in the course of which the companies intimated that if they were to be asked to quote a flat rate for the conveyance of pigs from farm to factory, some provision should be made which would ensure that practically the whole of the traffic would be handed to them. In other words, they could not reasonably be asked to quote a flat rate and then find that pig producers could transport the pigs to the factory by some other means and so have a choice of the agreed charge or some alternative method of transport. Eventually the two boards accepted the railway companies' offer to convey live pigs from farm to factory at a charge of 2s. a pig or such sum a pig as will (after deduction of the railway de-rating allowance) produce a net sum of 1s. 8d. a pig, whichever is the lower. The reason for the disqualification in regard to de-rating is that the boards responsible for the scheme were anxious to have the same flat rate in operation until December next. The de-rating rebates are reviewed annually in October, with the result that if an alteration were made in the quantum of the rebate, there would, for one month in the year, at any rate, be a different sum payable by the producers.

It was agreed, however, that certain exceptions should be made to the general agreement in respect of pigs which are produced and delivered locally. Thus the flat rate does not apply to pigs produced at places not more than five miles (measured in a direct line) from the curers' premises or to pigs produced at places exceeding five and not exceeding fifteen miles (measured in a direct line) from the curers' premises where throughout road conveyance may reasonably be required. The railway companies have also agreed to view sympathetically certain cases where curers or producers desire to use their own vehicles for the transport of pigs from farm to factory as they have done heretofore. On the behalf of the railway companies it was explained that more than 50 per cent. of the live pigs now passing to curers in Great Britain are being conveyed by road and, in the event of the agreed charge being sanctioned, approximately 90 per cent. of the total pig traffic passing to registered bacon curers would be carried by railway. The extent of the traffic can be gauged by the fact that over 1,250,000 pigs are contracted for sale to bacon factories under the scheme to pass in ten months, and that the Minister of Agriculture estimates the capacity of the existing bacon factories at something over three million pigs per annum. The tribunal eventually decided that the object of making the agreed charge could not be secured by the grant of exceptional rates, and that the net revenues of the railway companies would benefit if the agreed charge was approved, and they accordingly sanctioned it.

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2-8-2 Express Engines

UNDER the heading of "Another Largest Locomotive," we briefly commented on page 865 of our last issue upon the new three-cylinder 2-8-2 type express locomotive No. 2001 recently completed at the Doncaster works of the L.N.E.R., and in doing so quoted a statement in a daily newspaper to the effect that this was "the first express passenger engine of the Mikado type in the world." A correspondent supports the claim made by our contemporary on the grounds that, although many locomotives having the 2-8-2 wheel arrangement are sometimes used for passenger train working, none of them could be properly termed an express passenger type on *prima facie* grounds, the diameter of the coupled wheels and other features definitely relegating them to the category of mixed traffic and freight engines. Not much importance, in any case, attaches to the question of priority in such a matter, but, in the interests of accuracy, it may be as well to cite one or two cases in which locomotives of the 2-8-2 type built specially for express passenger train working are regularly used on some of the fastest and most important services on the Continent. It will suffice to mention the four-cylinder compounds built about 1919 for the Saxon State Railways, and those introduced in 1924 on the Italian State Railways for hauling heavy fast passenger trains between Rome and Florence, both classes being express passenger engines in the fullest sense of the term. The German engines have 6 ft. 4 in. and the Italian engines 6 ft. 2½ in. coupled wheels, as compared with the 6 ft. 2 in. of the new L.N.E.R. locomotive. In addition, there is the well known three-cylinder German State Railway design with 5 ft. 8½ in. wheels which also rank as express passenger engines and are employed alternately with the 4-6-2 classes on certain of the heaviest and fastest express trains on the German main lines.

An interesting point arising out of the newspaper's claim is the question of what really does constitute an express passenger locomotive. Our own view is that any locomotive which is regularly employed in working passenger trains at high average speeds, regardless of the size of its coupled wheels, can rightly be included in this category. As is generally agreed, locomotives with coupled wheels of moderate size are capable of maintaining very creditable average speeds, making up on long grades for anything they may lose in fast running downhill, and the increased adhesion of an eight-coupled engine fits it admirably for heavy express working over difficult routes. The 2-8-2 wheel arrangement in such circumstances is a good one in that it allows the leading coupled wheels being brought further forward than is possible in engines with a leading bogie, and thus keeps the wheelbase within convenient limits. A further point in favour of a two-wheeled rather than a four-wheeled leading truck is that greater adhesion weight is available, assuming other factors to be about the same. There is, of course, a size beyond which the designer cannot reduce the coupled wheel diameter where

the class of traffic to be operated calls for high average speeds, but that limit is not determined, as some appear to consider, by an arbitrary 6 ft. ruling for locomotives intended for express passenger service.

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The Signal Department

FOR some time past we have been publishing letters on the question of the Signal Department and how it should be organised. The subject has often been discussed, but interest in it has been re-awakened recently by the effect of the economic crisis on several colonial railways, which, obliged to reduce expenses, have dispensed with the services of some signal engineers and signal assistants. They have probably, however, not restricted their staff reductions to this department alone. The misfortunes of the signal engineers are but symptoms of a condition of affairs of which many men, having qualifications of at least equal merit, are innocent victims. A remedy for the evil is urgently needed, but there are small signs of one being applied within any reasonable time. A trade revival, it is true, is said to be at hand, but a considerable improvement is required in the fortunes of some railways before they can approach the prosperity they once enjoyed.

Among the opinions expressed in our correspondence, the contention that the signal engineer's ability is not fairly recognised will certainly have attracted attention. This implies that the importance of signalling itself is not properly appreciated. We do not believe this to be the case in the mind of any responsible general manager. It may be taken for granted that responsible railway officers realise how essential signalling is to the safe and successful operation of traffic, and if on those railways where signalling staff reductions have been made the apparatus becomes neglected in consequence, the results will not be long in showing themselves. It seems to be assumed at times, however, that signalling apparatus is of such a special and peculiar character that only a few persons can ever learn to understand it. It is true that signalling is a highly specialised subject, particularly in some of its modern refinements, such as power signalling, centralised traffic control, gravity yard apparatus, and alternating current track circuits. On railways where such appliances are required there must be a signal department staffed by men who have given time to the study of these subjects. The size of the installations is generally such that an independent staff is required to look after them. We cannot believe, however, that ordinary mechanical signalling, such as is found on many colonial lines, or even electric token and block instruments, cannot be understood and maintained, under any competent district engineer, by ordinary electricians. On some British railways before grouping, signal maintenance was carried out by the district engineers, and we are not aware that the arrangement had any serious disadvantages so far, at least, as pure maintenance was concerned. This subject is, we feel, closely connected with the wider question of education for the railway service. Too much specialisation to begin with is possibly a mistake, however necessary division of work may be afterwards for administrative reasons. On the Continent we find that most engineers in the civil engineering department have quite a good knowledge of signalling, and that the officers in the signal section have, more often than not, been active in bridge and permanent way work. All branches of engineering are, in the last resort, so many manifestations of the same thing—the application of scientific knowledge to a particular purpose. For this reason we welcome the tendency, now manifesting itself, for those entering the signal departments to equip themselves with a broad general engineering education.

There is also a railway company's point of view to be considered, in this matter. A commercial undertaking must be able to organise the composition of its staff to obtain the best results for a fair and reasonable expenditure, and to employ technical talent in the manner best suited to its objects. A railway can be no exception to this. The need to-day is for closer co-operation between all departmental sections and a wider knowledge of each other's work. Some of our correspondents appear to think that the Institution of Railway Signal Engineers has failed in some way. That is not our opinion. If one of its objects is, as they declare, to improve the status of the signalling profession, it is furthering this in the only way which is fairly open to it, by the general technical and educational work it is undertaking. We presume it could, and would, do more in this respect if it had more money. As a body it cannot be expected to tell the railway companies, either here or in the colonies, that they ought to organise their department in this or that manner. If it did so it would, in our opinion, be going beyond the functions of a technical society which is in no sense an official body. Some of its members may not appreciate the amount of gratuitous work necessary to maintain its "far-shining sign" undertaken so willingly by those who manage its affairs. They cannot achieve the impossible, and the setting up of special signal departments on some overseas lines in existing circumstances comes pretty near to falling within such a definition.

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German State Railway

THE general tone of the annual report of the German State Railway for the year 1933 is one of qualified optimism. The improvement in the economic situation of the country under the new Government checked the fall in receipts of the State Railway and, indeed, resulted in a small increase for the period July 1—December 31, 1933, compared with the corresponding period in the previous year. Receipts did not, however, keep pace with the traffic owing to reductions in rates and a considerable amount of free transport provided as a contribution to the national revival. Goods traffic showed an increase of 9·9 per cent. in tonnage and 5 per cent. in receipts, compared with 1932, but is still considerably below the figures for 1931, and 36·6 per cent. lower in tonnage and 47·9 per cent. lower in receipts than during the peak year 1929. On the other hand, passenger traffic showed a further decline of 4·9 per cent. in numbers for 1933, compared with 1932, and 6·1 per cent. in receipts (40·6 per cent. decrease compared with 1929). The gross operating receipts for 1933 were 13,700,000 marks lower than for 1932, a decrease of 0·5 per cent.; but they were 2,433,000,000 marks lower than in 1929, a decrease of 45·4 per cent., largely owing to reductions in rates. The accompanying table shows that despite the "satisfactory development of traffic and receipts during the second half-year" (concerning which no separate statistics are given), the overall figures for 1933 are worse than for 1932, but to a much less extent than in 1932 compared with 1931.

	1933	1932	1931
Passenger numbers, millions ..	1,240·5	1,305·1	1,577·7
Goods tonnage, million tons ..	308·1	280·4	325·5
Passenger receipts, million marks	821·9	873·3	1,115·2
Goods receipts, million marks ..	1,815·2	1,729·1	2,307·5
Gross receipts, million marks ..	2,920·6	2,934·3	3,848·7
Expenses (operation, maintenance and renewals), million marks..	3,056·6	3,001·0	3,622·5
Balance on operating account, million marks	−135·997	−66·766	+226·196
Operating ratio, per cent. ..	104·66	102·27	94·12

The report states that the expenditure on operation, maintenance and renewals might have been reduced below

the amount for 1932, but it was actually increased in order to relieve unemployment; as a consequence, the operating ratio rose to 104·66 per cent. The deficiency of 136,000,000 marks on operating account, together with 70,000,000 marks payment to the Reich, 33,100,000 marks for debt and loan charges, 58,400,000 marks to statutory equalisation reserve, 12,400,000 marks for depreciation of additions and betterments, and 75,700,000 marks for preference dividend, makes up a total of 385,600,000 marks, against which there are extraordinary receipts as follows: 135,300,000 marks from tax vouchers; 281,500,000 marks from the additions and betterment depreciation reserve; 50,800,000 marks from the Reich credit, 5½ per cent. international loan account; total 467,600,000 marks, leaving a surplus of 82,000,000 marks, which is allocated 40,000,000 marks each to dividend reserve and special reserve, and 2,000,000 marks carried forward. An essential factor in the balancing of the accounts has thus been the withdrawal of 281,500,000 marks from the additions and betterment depreciation reserve account, the total of which was reduced from 445,300,000 marks to 163,800,000 marks in accordance with retrospective application of the relevant clause in the State Railway Law. As this withdrawal cannot be repeated, " the State Railway must henceforth make every effort to balance receipts and expenditure "—a matter of extraordinary difficulty while taxation, contributions to the Reich, dividend and debt charges amount to about 570,000,000 marks, or one-fifth of the operating receipts.

In view of the fact that existing rolling stock is not fully utilised, orders for new constructions have been limited mainly to locomotives, special types of wagons, and rail cars. The work of accelerating passenger services and providing additional facilities is to be continued, but rates cannot be further reduced except for minor adjustments. Increasing benefits are anticipated from development in large-capacity wagons, container transport, small shunting locomotives, light and fast goods trains, and the use of road vehicles carrying loaded wagons to and from customers who have no private sidings. The company sacrificed about 23,500,000 marks by providing cheap or free goods transport in connection with various employment and settlement schemes; and incurred a considerable amount of avoidable expenditure by maintaining the number of its own employees, while eliminating short time and seasonal dismissals. The average personnel was 593,433 in 1933, compared with 600,595 in 1932, but the number on January 1, 1934, was 78,000 higher than a year before. The locomotive mileages in 1933 were 208,082,000 in goods service (about 0·6 per cent. lower than in 1932; the train mileage was 2 per cent. higher than in 1932, the overall decrease being due to reductions in shunting); 297,874,900 in passenger service (about 0·9 per cent. increase); and 25,113,800 in official service (6·1 per cent. increase compared with 1932).

The financing of the heavy programme of supplementary employment by bills places a heavy burden on the future, but confidence is expressed in the success of the Government's measures for national recovery, and in the ability of the Government and the Reichsbank to place long-term loans at the disposal of the State Railway in the near future. The company's total debt, including liabilities under the employment programme, amounts to about 2,800-million marks. The balance sheet for December 31, 1933, shows the investment by the State Railway Company of 50,000,000 marks in the new Gesellschaft Reichsautobahnen (State Motorway Company). In addition to the advantages which are expected to accrue from the unified control of goods traffic by rail and road, the construction of the new roads will receive the benefit of the organisation and resources of the State Railway charged at net cost, and all constructional materials will be carried at the railway service tariff, representing a sacrifice of about 150,000,000 marks in freight receipts.

(*The returns for the first quarter of* 1934 *are recorded in a news paragraph on page* 948.)

Publicity in Three Languages

Due to the diversity of races in Palestine, posters and notices on the railways in that country are published in three languages, English, Arabic and Hebrew. We are indebted to Mr. C. R. Webb, General Manager of the Palestine Railways, for these examples of a trilingual announcement

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of Correspondents)

The Signal Engineer's Department

Brook Green, Hammersmith.
May 16

To the Editor of The Railway Gazette

Sir,—Regarding the Signal Engineer's Department, ultimate economy in the operation of the railway as a whole is the preliminary interest to railway managements. Thus there is the insistence on reduction of operating costs by every means, but this does not give any excuse to abolish the Signal Department and those in charge of signalling, who are thoroughly acquainted with such work, in favour of non-signal departments.

If the interests of such railways are to be protected, those in charge of signalling should be officers who have gained their experience in the field and have been educated in the course of practical experience by having "been through the mill." Those in charge of construction, operation, and maintenance of signalling should be sound men at their work. Such experience and knowledge is not picked up "any old how." It is the result of years of training, technical and practical. It is unfair, besides being unwise, to hand the responsibility for the safety of train operations, as well as for the reliability and economy of operation of signalling apparatus, to those who are not trained as signal engineers and who lack the idea of safety. Such a policy is not consistent with safety.

Faithfully yours,
JAS. LAMBERT

Safe Speeds and Axle Loads on Colonial Narrow Gauge Railways

Kenya and Uganda Railways and Harbours.
Nairobi, May 9

To the Editor of The Railway Gazette

Sir,—I have read with interest Mr. Bulkeley's letter and your editorial comments on gauge and speed published in the issue dated April 13.

I quite agree that it would be of real advantage if the Institutions of Civil, Mechanical and Locomotive Engineers could examine the question and recommend standards for safe speeds and axle loads on Colonial railways, as this would give a standard to work to, and avoid the difficulty of personal temperament, but, of course, local conditions would have to be very carefully considered.

But is the question of high speeds really important on most Colonial railways? Mr. Bulkeley indicates that the precise value which is set upon the time factor by the indigenous population of the Crown Colonies may be disregarded.

I am of the opinion that high speeds are not nearly as important on Colonial railways as they are in highly developed and densely populated countries, and not nearly as important as low operating costs.

It is well known that the desideratum on single lines is that all trains should, as far as possible, run at standard speeds, and that a mixture of high speed trains and low speed trains considerably reduces the maximum capacity of the track.

In nearly all Crown Colonies the bulk of the receipts from passenger traffic is derived from the lowest class, that is, from the indigenous races. These races have, until recent times, been accustomed to measure journeys in days, not hours, and, at the present time, speed is not an important factor to them.

In practically all Colonies, however, the main object of the railways is the movement of bulk crops, the produce of the countries. Most of these crops have to be exported and marketed at far distant places, and cheapness of transport is the most important item. It is known that operating costs increase at a greater ratio than the direct ratio of the increase in speed, in spite of the saving on wagon turn round, &c. Therefore, any increase in speed must tend to increase the transport costs. It seems to be more desirable to ascertain the mean economic speed of the locomotive with the greatest practical load behind the tender, and it is more likely that this will meet the conditions of Colonial railways better than the highest permissible speed, which must mean corresponding reduction in the load behind the tender.

Finally, there is one important factor, which requires much consideration in fixing the highest safe speeds on Colonial railways, and that is the control of trains descending heavy and continuous down grades.

Yours faithfully,
R. E. ROBINS,
Assistant Superintendent of the Line

Signalling Mentality

c/o Miss Unwin,
Churt,
Farnham, Surrey.
May 21

To the Editor of The Railway Gazette

Sir,—The use of power and automatic signalling is naturally very much extending at the present time and, on returning to this country after many years during which I have been engaged in the development of such systems abroad, I have been struck by a feature which, as it appears to me, affects their orderly development here. I refer to the attitude of mind which persists in dealing with the newer methods in terms of the older signalling practice still largely in use in Great Britain.

Standard British signalling practice, which developed in the era of the Regulation of Railways Act of 1889, quite properly centred on the manual block system. It treated the block signal-box and the area under its control as the unit of the signalling system and sought by regulation and procedure to fill the gaps in the sequence of safety precautions inherent in a manual and non-controlled system. The use of lock and block and similar devices did little to modify the need for these precautionary methods.

With the adoption of power and automatic signalling and their many ancillary devices, the position is, however, entirely changed. Many of the precautions necessary in the working of the older systems are no longer needed, and many of the regulations which long usage has enveloped with a halo of sanctity are found, in the light of newer methods, to be but empty shibboleths. A terminology suited to the conditions of the newer systems should take the place of that to which we have been accustomed and the problems should be approached from a different angle. As an example, when signals are track-controlled and capable of working at their own volition, it is no longer rational to think of them under the traditional terms such as "home" or "starting" or by other special names, nor is it of any value to think of block signalling or sections in the terms of the interlocking from which they may happen to be controlled.

May I attempt to clarify the position by enumerating the following three simple axioms, as applicable to all areas of power and automatic signalling and even (in principle and *mutatis mutandis*) to areas of manual signalling:—

1. The unit of a signalling system is the block section.
2. A block section is the length of track between a signal and the next one ahead, plus such overlap as may be necessary.
3. Each signal should indicate (*a*) the condition of the section next ahead, and (*b*) the aspect of the signal next ahead and of any others within braking distance.

I realise that in setting out these axioms I may be charged with heresy, but I am sure that if submitted to careful and unbiased examination they will be found exactly to fit the needs of modern practice and that they could even be made to apply (where conditions justify) to the older systems.

And when so applied how many of our cherished regulations would be found to vanish into thin air!

Yours etc.,
C. B. BYLES,
Formerly Signal Engineer, New South Wales Government Railways and Lancashire & Yorkshire Railway

PUBLICATIONS RECEIVED

Reinforced Concrete Arch Design. By G. P. Manning, M.Eng., A.M.Inst.C.E. London: Sir Isaac Pitman & Sons Ltd., Parker Street, W.C.2. 9 in. × 6 in. 190 pp. Illustrated. Price 12s. 6d.—There can be no question about the value of this book to the bridge specialist—it is by an engineer with 16 years' experience in the design and construction of reinforced-concrete structures, and contains for reference purposes the plotted results of a vast number of tedious calculations. Underlying the author's method of design is the theory of the thin arch, which is simpler and scarcely less accurate than that of the thick arch, and which is applicable practically, provided graphs of the kind given are already to hand. Arch design is, however, still a somewhat complicated study even under Mr. Manning's methods, and the reader will need a strong practical incentive if he is to peruse this volume from cover to cover. As is usual with Pitman & Sons' books, the reproduction of the drawings is excellent and the text attractively clear.

Die Kleinlokomotive im Rengierdienst auf Unterwegsbahnhöfe der Deutschen Reichsbahn. (The Small Locomotive, as used for Shunting at Intermediate Stations on the German State Railway.) By the Reichsbahnräte Galle and Witte. Berlin: Verkehrswissenschaftliche Lehrmittelgesellschaft m.b.H., Voszstrasse 6. 8¼ in. × 5¾ in. 230 pp., 113 illustrations. Price RM. 8·25.—The German State Railway has been steadily introducing, in the course of the last few years, a great many improvements in shunting methods, not only at large marshalling yards, which have been equipped with the most up-to-date apparatus, but at ordinary intermediate stations also. The cost of shunting amounts to a very large sum of money annually on such an extensive railway system, and systematic efforts are being made to reduce it. This book describes what has been done with the so-called "small locomotives," of various firms' designs, with which a number of stations have now been provided. They perform nearly all shunting work at such stations, so that goods trains are not delayed for that purpose.

The volume opens with figures relating to the extent of the shunting on the Reichsbahn, and outlines the classes of work suitable for handling by the small locomotives. It then discusses the characteristics of different designs and their bearing on the problem. Emphasis is laid on the importance of correct training of the staff who are to handle the locomotives, and the methods adopted for this purpose are explained. The maintenance of the machines calls for special care and training. The authors explain the methods followed in selecting the stations where these locomotives would be of the most service, and a map is given showing their location. Numerous photographic illustrations of small locomotives at work add considerably to the interest of the text. All classes are shown—petrol, diesel, and accumulator. The last, it is considered, have at present a rather limited field of usefulness. Tables of dimensions and costs are given and the system of numbering of the locomotives is explained. Before going into service each machine was sent to the testing station at Grunewald, Berlin, for examination, and opportunities were afforded for the staff concerned to learn the working of it.

A fairly detailed description of certain typical locomotives is given, with photo graphs and drawings of the most interesting parts of the mechanism, so that the different designs of clutches, brakes, engines, gears, &c., can be understood, with remarks on the experiences gained with each. Although standardisation of design is desirable, not much has been so far done towards it, save the laying down of certain general rules, as sufficient experience is not yet available with the numerous designs which are being tried. The book is excellently printed, and is written in a very clear style. It should be useful to those in this country engaged on the study of how to cheapen shunting operations. In Germany already considerable sums have been saved, it is stated, by the use of these small locomotives.

Pillars.—British Insulated Cables Limited, of Prescot, Lancs, sends an illustrated catalogue of feeder and distribution pillars and panels. The whole range of this apparatus, which is of unit construction, is shown, together with particulars of complete assemblies for various purposes. The standard carcases to house the units are of cast iron, a material with the advantage of high resistance to rust as compared with sheet steel. Sub-station panels built up of this apparatus and suitable for wall or floor fixing are also illustrated. Tables of dimensions and capacities and sectional drawings with details of all components appear in the catalogue.

Woodworking Machinery.—In the 225 pages of this new catalogue, No. 19M, published by Thomas Robinson & Son Ltd., of Rochdale, machinery for all classes of woodwork is illustrated and described. A section dealing with railway plant shows large mortising and boring machines and gives brief particulars of the Robinson patent dust-collecting system, which has been specially developed for use in shops where heavy work is undertaken. Electric drive can be conveniently applied to all machinery, many models being readily adopted to carry a built-in motor. A sleeper adzing and boring machine can be supplied with a steam or oil engine and ready for mounting on platform wagons. This self-contained plant also includes a grinding machine with accessories for the cutters and augers.

Cruises of The Northern Belle.—The L.N.E.R. sends a booklet showing the itinerary of The Northern Belle cruising train, which leaves King's Cross on its first journey this year on June 1, and of its associated road and water excursions. Particulars of the current arrangements, together with a map of the route, appeared in a news paragraph in our issue of April 6. The booklet is illustrated with some fine full-page views of lake and mountain scenery and an introduction describes the special appointments and facilities provided for rail-cruise passengers.

Pumps and Compressors.—An illustrated folder from the B.A. Holland Engineering Co. Ltd., 18, Victoria Street, S.W.1, outlines the leading mechanical features and capacities of the firm's rotary compressors and rotary vacuum pumps. Among the advantages claimed for the rotary principle are continuous delivery and absence of vibration. The simplified mechanism also makes the minimum of attention necessary. Both compressors and pumps are water-cooled in the larger sizes, and two-stage machines are supplied when pressures between 60 and 250 lb. per sq. in. or vacuums of over 99 per cent. are required. Low-pressure blowers and capacities are also listed.

"New—and at Your Service."—This is the title of a striking booklet just published by Allardyce Palmer Limited, advertising contractors and consultants, of Carmelite Street, E.C.4. Its purpose is to outline the publicity services offered by the firm, and to crisp and convincing letterpress is added effective but restrained typography and layout. A clever combination of black and grey on the cover strikes a note of cleanliness and efficiency that is amply maintained in the following pages. The firm of Allardyce Palmer Limited is a specialist in advertising in the trade and technical press. Its activities also extend to the production of all printed sales literature and to the organisation of sales and circularising campaigns.

Pneumatic Chipping Hammers.—Sir W. G. Armstrong-Whitworth & Co. (Engineers) Ltd. sends a new illustrated catalogue of pneumatic chipping hammers. Models suitable for a wide range of duties, from very light riveting to heavy chipping, are supplied. Handles for the tools are in most cases available with either inside or outside lever and an extra long trigger can be fitted if required. A very compact and light chipping hammer is now in production which has a variety of uses, but is particularly suitable for accurate work in confined spaces. Low air consumption is a feature of all the tools. The catalogue has a pictorial section showing hammers in use on a number of jobs to which they can be applied. The foreword includes hints on care and maintenance, making the publication of value for reference purposes.

THE SCRAP HEAP

It has long been a mystery to me that Hollywood should not trouble to have a few shots of English railway trains for films of English life. Such shots could be had very cheap, and they would prevent the shock we get when we see, as in " The Mystery of Mr. X," an American express charging along the railway that leads from Dover to London.—*Seton Margrave in " The Daily Mail."*

* * *

THE BABY SCOT

When the Night Scot, the L.M.S. express which left Glasgow for Euston at 10.30 p.m., last Friday night, was passing through Acton Grange, between Warrington and Crewe, a daughter was born to Mrs. Seddon, who was going to Coventry with her husband. He pulled the communication cord at Wigan. The train stopped and a telephone message was sent on to Crewe to get a doctor. The train then proceeded. A doctor was on the platform when the train reached Crewe. Mother and daughter were rushed to hospital. Both are stated to be " getting on finely." The Night Scot soon made up the time lost. —*From " The Evening News."*

* * *

We are once more reminded of the adage that there is " nothing new under the sun " by an announcement of the American Locomotive Company calling attention to a patent granted 40 years ago to a Mr. F. U. Adams for the streamlining of railway locomotives and trains. At a time when so much attention is being given to this question in modern construction it is interesting to have brought to our notice an example of design in which, the announcement states, " everything was streamlined but the bell rope." If that claim could be substantiated and the invention taken up by railways outside America, Mr. Adams would have achieved a 100 per cent. streamlining effect for the simple reason that there would have been no bell rope to worry about !

* * *

L.M.S. DIRECTOR ON MODERN DANCING

" . . . As an old man, I do not understand this style of dancing, dancing with the same partner for three or four hours at a time with a fearfully sad face. It sometimes leads to catastrophe. I heard the other day of a man who had been dancing with a girl for three hours, and he thought she was getting rather heavy and rather pale, so he put her on the sofa and went for a doctor, and said, ' Doctor, do come and look at this lady, I think she must be ill,' and the doctor said, ' Ill? Why, she has been dead for two hours! ' . . ."—*The Rt. Hon. Viscount Knutsford, speaking at the 76th annual dinner of the Railway Benevolent Institution.*

* * *

RAILWAY TRAVELLER'S CONSCIENCE

" . . . Only this morning I was interested to learn that a gentleman 40 years ago used a pass which his employers had from the railway, for travelling over a portion of the line to which it was not applicable. But there arrived at this institution postal orders from this gentleman as conscience money! The Chancellor of the Exchequer is always acknowledging the tardy payments made by tax payers, but here is someone who, I am glad to say, has used the railways and not paid for them, and now he feels he must pay for it by making recompense to this institution. Now those of you gentlemen who have travelled first class with a third class ticket, and those of you who work for local authorities and have an allowance for first class travelling expenses and travel third class, have an opportunity of handing over your obligation to the institution! . . ."—*The Rt. Hon. Lord Macmillan, speaking at the 76th annual dinner of the Railway Benevolent Institution.*

* * *

BATTLE OF WATERLOO (1934)

I fought in the battle of Waterloo last week-end. The following lament skreighed over my head as I jostled and snarled my way out of one of many mêlées:

First Amazon: I've lost my husband and my daughter.

Second Amazon: And I my luggage and my friend.

The Southern Railway troops, reinforced by the Metropolitan Police, were magnificent. They kept the enemy moving. At no time during the great holiday retreat from London was there space to move in Waterloo station other than by a sideways wriggling method. Yet at no time did the mass of holiday-captured humanity come to a standstill.

The officer commanding the Southern Railway troops, General Loud-Speaker, had the voice of Bashan and the patience of Job. Unseen, bull-throated, lion-chested, he boomed incessantly—directing, organising, distributing.

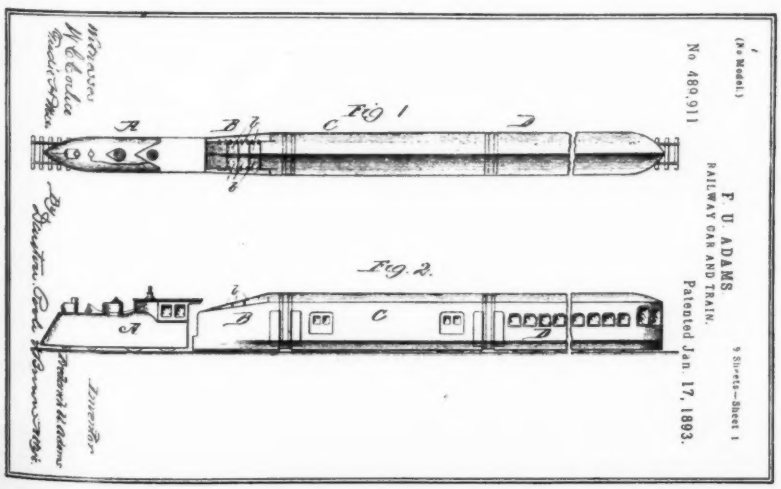
I stood on a bench to see the effect. Struggling chaos was the first impression. Then it became plain that, controlled by the amplified voice, this welter of train-seekers was divided into dozens of sluggish currents, all trickling confidently towards their destination.

The advice and information constantly bellowed into their ears from above enabled them to ignore notice boards, relieved porters and police of harassing questioners, and allowed all but those who habitually lose luggage and relatives to escape from London moderately unruffled. — *From " The Morning Post."*

* * *

SPACIOUS DAYS ON THE " DISTRICT "

Mr. Herbert Willmott, for 47 years an employee of the District Railway, has received a presentation from season ticket holders at Putney Bridge, where he is now station foreman. Mr. Willmott is one of the three oldest men on the Underground, and has been at Putney for 28 years. He has vivid memories of the vagaries of the first electric trains and the surprising philosophy with which passengers accepted them. " People didn't seem to worry as long as they arrived some time," he is reported to have remarked to a representative of *The Evening News*. The traveller of bygone days, in fact, seems to have caused railway servants little trouble. He was rarely in a hurry, was impressed by his novel surroundings and lived on terms of friendliness and intimacy with the staff.



Everything streamlined but the bell rope!

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

Competition or co-operation with road and air services in India—New iron foundry at Jamalpur—Combating heat and dust in Egyptian coaches—Diminishing deficit and accelerated services in Denmark—Exhibits at the 1934 Chicago Fair—Far Eastern extensions and improvements

INDIA

Railways and Road and Air Competition

The road and rail question in India, though far from dormant, has been a little obscure since the conference held a year ago and duly reported in THE RAILWAY GAZETTE of June 2 last. What is clear is that the Government of India has since been in correspondence with the local governments on these resolutions, but no concrete formula has yet been evolved to secure a co-ordinated system of transport for the whole country. It is, however, recognised that the solution lies in co-operative action on the part of the various administrative units that, under the existing system of government, have control over the different parts of this complex problem.

Recognising the advantages of road transport and that it has come to stay, Indian railways seem to have taken up the attitude that if conditions were equalised by the imposition of similar restrictions upon road services, they would be content to meet the competition by better and more attractive service. A point of view that has obtained considerable public support is the elimination of wasteful competition so that the existing means of transport may be utilised to the best advantage of the public.

Possible Lines of Action and Present Policy

In the face of growing competition from motor transport the Indian railways have three courses open: (1) The surrender of certain classes of local or short distance traffic to road transport; (2) competition; and (3) operation of road services by the railways. A very large proportion of coaching earnings on the railways is derived from the transport of third class passengers whose average distance of travel rarely exceeds 35 miles. Zoning of motor transport, therefore, will not afford the railways any protection, while the sacrifice of large revenues obtained from this source will necessitate a general increase of rates and fares which may react unfavourably on trade and industry. Competition, on the other hand, is wasteful and, in result, neither the railways nor the bus owners will be able to earn an adequate return on the capital invested in these operations. The railways have hitherto sought to regain traffic from the roads by the following measures:—

(I) Quotation of reduced fares, either for single or return journeys, between points where investigations have shown that traffic might be captured. In some cases the reduced fares are as much as 50 per cent. below the usual fares.

(II) Introduction of more frequent, more convenient and faster train services.

(III) Railcars designed to provide a better and cheaper service than the normal train have also been introduced by many railways.

Railway Operated Road Services

The operation of road motor services by railway administrations has been attempted only on the Nizam's State Railway, and the innovation promises to be successful. Legislative sanction has been secured to enable the light railways affected by road competition to run motor services along their routes, but no such services have yet been opened. There is no statutory bar to the operation of road services by State-managed railways in India. Company-managed railways having contracts with the Secretary of State for India may get road powers only with the approval of the Home Parliament. A proposal to obtain such powers for the railway companies has, possibly, been deferred till the Government of India comes to a final decision on the best means of co-ordinating transport.

Air Competition

In the meantime, the problem of competition in transport seems to have increased in complexity with the growth of air transport. In addition to the regular air mail connections, there is, as already reported in THE RAILWAY GAZETTE, a daily service between Calcutta and Dacca which is growing in popularity. Sanction was accorded a short time back to the operation of a daily air service between Calcutta and Madras, but no regular service has yet been started. A Calcutta-Bombay air service with strong financial support is being seriously considered by business men.

Labour Problems on Railways

The importance attached to labour questions is recognised in a memorandum submitted last February by the Railway Board to the Standing Finance Committee for Railways, seeking to place the temporary establishment dealing with staff matters on several important railways on a permanent basis. The half-yearly conference between the Railway Board and the representatives of the All-India Railwaymen's Federation has led to a free interchange of views, which has had a sobering influence on the extremist wing of the labour movement. The Agent of the B.B. & C.I. Railway recently received a deputation of the railway staff union for a discussion of labour problems. The deputation pleaded for the restoration of salary cuts in view of the profit-earning position of the railway in the year just concluded. It was urged that the cut was particularly hard on men drawing Rs. 30 per month. The Agent explained that the cut was introduced by the Government of India and applied to all government and railway employees. In a matter of this kind it was impossible for the B.B. & C.I. alone to be considered apart from other railways.

Remodelling of Jamalpur Workshops

At a meeting of the Standing Finance Committee for Railways held at New Delhi in April last, sanction was accorded to the Railway Board's scheme for remodelling the East Indian Railway workshops at Jamalpur. The cost is estimated at about Rs. 26 lakhs, of which a sum of Rs. 10 lakhs is proposed to be spent during the current year. A portion of the workshops was damaged by the earthquake on January 15, but fortunately the damage was mainly confined to the old brick buildings, the demolition of which forms a part of the proposed remodelling. The budget for 1934-35 provides Rs. 10 lakhs for additional machinery and plant for the new general iron foundry at the Jamalpur Workshops.

EGYPT

Schemes for Improving the Interiors of First Class Coaches

Many schemes for improving the interior decoration and general comfort of first-class coaches are now under trial, as it is realised that the existing compartments leave much to be desired both in attractiveness and comfort. The two most serious difficulties to be contended with in giving the public comfortable travel are dust, especially on the desert stretches over which the line passes, and excessive temperatures. Experiments are being carried out with a view to obtaining airtight, and consequently dust-tight, window equipment, and all the various known systems of air conditioning and cooling are being investigated, but the great weight and high cost of such equipment seriously handicap its adoption.

Proposed Summer Excursion between Cairo and Port-Tewfik (Suez)

So great was the success that attended the seaside excursions—referred to in THE RAILWAY GAZETTE of November 10 last—between Cairo and Alexandria and Cairo and Port-Said last summer, that the question of

running a further excursion to Port-Tewfik this summer is now under consideration. The approximate distance from Cairo to Port-Tewfik via Benha, Zagazig and Nefícha is 247 km.; and the proposed return fare is P.30 (app. 6s.). An additional P.20 (4s.) would be charged for lunch and bathing at Port-Tewfik Casino, making the inclusive charge P.50 or about 10s. for the day's excursion. The train would be composed of third-class coaches and would leave Cairo at about 6 a.m., reaching Port-Tewfik at about 10 a.m., and would depart from Port-Tewfik at 6.30 p.m., reaching Cairo at about 10.30 p.m.

DENMARK

Financial Results of the Year 1933-34

A preliminary report of the financial results of the year ending March 31, 1934, shows a considerable increase in receipts without a corresponding rise in expenditure. Passenger receipts increased from 43·6 million Kroner to 49·0 million, an increase of 12·4 per cent. and goods receipts showed an increase, from 38·4 to 40·6 million Kroner. Total receipts are 100·4 million Kroner or 8·5 million more than in the year 1932-33, which gives an increase of 9·3 per cent. Against this working expenses showed an increase of only 300,000 Kroner, from 105·1 million to 105·4 million Kroner, thus giving a working deficit of 5 million Kroner against 13·2 million in 1932-33. In these figures depreciation and interest on capital are not included. If these be added the total deficit is 19·9 million Kroner.

Station Hotel

The State Railways have leased a site, belonging to them and adjoining the Copenhagen main station, to a company which is now building on it an hotel. In the building, the State Railways travelling agency will be provided with rooms off the main thoroughfare, Vesterbrogade. In 60 years the ownership of the hotel will pass over to the State Railways.

The Summer Time-Table

The main features of the summer time-table, which was introduced on May 15, are numerous accelerations, more frequent services, the opening of the electrified service on the Copenhagen suburban lines, and the placing in service of 10 fast diesel railcars.

The opening of the electrified line from Copenhagen to Klampenborg completely alters the suburban time-table. A regular 20-minute service is now given. The fast tank engines formerly used are now replacing older engines on other lines, and the petrol railcars formerly running on the other electrified suburban line, Frederiksberg-Hellerup-Klampenborg, are now used on several minor local lines. Another suburban line to Ballerup has also had its old four-wheeled railcars replaced by petrol-electric bogie railcars. All other suburban lines now have more intense services and additional through trains.

New Diesel-Electric Services

The new 480 b.h.p. fast diesel-electric railcars, just delivered from Frichs Locomotive Works, have been put into service and show remarkable running capabilities. One car with a trailing load of 40 tons covers the distance between Copenhagen and Kalundborg, 110·6 km., including 16 stops, in 2 hr. 6 min. or at an overall travelling speed of 50 km.p.h. (31 m.p.h.). The net running time is 112 min., thus giving an average speed of 37 m.p.h. Another of these cars provides a new fast service in Jutland, running from Fredericia to Randers, a distance of 167·9 km. (104 miles), with 80 trailing tons, on a heavily graded line, in a running time of 156 min., an average speed of 40 m.p.h. With 40 trailing tons, another car covers the distance Randers-Aarhus, 81·1 km. (50·5 miles), in 69 min., averaging 44 m.p.h.

UNITED STATES

Railway Exhibits at the 1934 Century of Progress, Chicago Fair

American railways and firms have combined in a great exhibit at the Century of Progress Exposition of 1934, illustrative of the development of transport in the past 100 years. Among the items forming this exhibit are the following: The Union Pacific high-speed, six-car, streamlined, diesel train at present under construction in the Pullman shops; the Burlington Company's Zephyr, which was illustrated and described in the *Diesel Railway Traction Supplement to* THE RAILWAY GAZETTE of May 18 and, on the other hand, an old Delaware & Hudson locomotive of 1827 which will be shown alongside one of that company's latest express engines.

Moreover, in the outside transportation exhibit, the Baltimore & Ohio will have two 600-ft. tracks, on one of them being an exhibit showing the evolution of the railway coach from 1830 to the present day. On the other track will be a new train equipped with "four-way" air-conditioning, *i.e.*, humidifying, dehumidifying, air cooling and warming. This company has also improvements and additions to its inside exhibit, including the old Atlantic type engine mounted on a table, enabling its wheels and motion to be kept constantly in motion.

The Chicago & North Western is staging a secret surprise show—believed to illustrate the scenic beauties of the line—indoors, and one of its latest express locomotives outside. A Pennsylvania contribution, according to *Railway Signalling*, consists of "a replica of the famous 'first engine,' by John Stevens. This was built in 1825 . . . and was operated on a circular track . . . by use of a cog wheel which meshed with a cogged center rail. The wheels were not flanged but were held on the rails with strange gadgets." The Chicago, Milwaukee, St. Paul & Pacific will display one of its large 521,200-lb. 12-motored electric locomotives and a streamlined, air-conditioned coach.

THE FAR EAST

Canton-Kowloon Railway

The Chinese railway authorities are seeking a revision of the railway agreement concerning the basis of division between the Chinese section and the British section of the line. The Chinese contention is that the present basis is inequitable. Previous discussions on the matter left the position unchanged and the Chinese are desirous of reopening the question.

Railway Construction in Manchoukuo

Two new railways are being constructed by the South Manchuria Railway under contract for the Manchoukuo authorities. Continuing from the existing railway at Tsitsihar, one of the new lines will be laid in a northerly direction to Heilo on the bank of the Amur river opposite Blagoveschensk. The second line will run from Tumen to Mutanking, *i.e.*, from the Korean border near Kainai, and across the Chinese Eastern Railway between Aiho and Hailin.

Chinese Eastern Railway

Traffic on the Chinese Eastern Railway is being adversely affected both by bad trade and competition, and to meet the changed conditions a revision of rates and fares is contemplated. Competition by the newly-opened Harbin-Lafa railway is already being felt, as the charges on the new line are considerably lower than those made hitherto on the Chinese Eastern line. It is anticipated that reductions ranging from 25 to 40 per cent. will be made. Bean and bean-oil are among the principal industries, and a reduction in the volume of such traffic due to diminishing foreign markets has had its reaction on railway revenues.

Tientsin-Pukow Railway Progress

Recently published figures show a steady increase in the gross receipts of this line. During the early parts of 1932 and 1933, Sino-Japanese hostilities caused a drop in passenger earnings, but this leeway was being made up latterly, and rapidly-improving goods receipts more than counter-balanced the slight set back. Gross receipts were:—

1931	... ...	$17,704,518·69
1932	... ...	$18,951,686·16
1933	... ...	$20,403,204·92

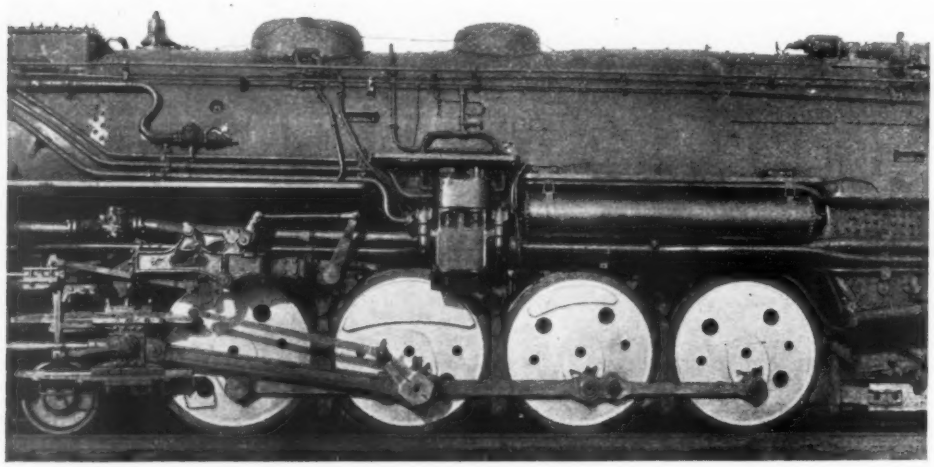
The approximate distribution was:—

	Passenger.	Goods.
1931 ...	$10,565,000	$5,490,000
1932 ...	$9,375,000	$7,213,000
1933 ...	$9,881,000	$7,646,000

NEW DISC-TYPE WHEEL CENTRES FOR COUPLED WHEELS

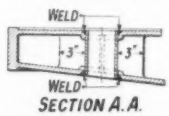
Increased strength with less weight, and ability to run underbalanced locomotives at higher speeds, are among advantages claimed for this wheel design

WE recorded in our issue of January 13, 1933, that a 2-8-2 freight locomotive, No. 2726, of the New York Central Railroad, had been fitted with driving and coupled wheels of disc pattern. An illustration of the locomotive, which was the first one to be so fitted, was published at the same time. We are now in a position to publish further details of the development. This type of wheel consists of a cast double-disc centre carrying the original pattern tyre and having pockets provided in the casting for the lead necessary for counter-balancing. Holes in the wheel centres at intervals permit access to pins and other parts requiring attention behind the wheels, the arrangement of which may be seen in the drawing reproduced in the opposite column.



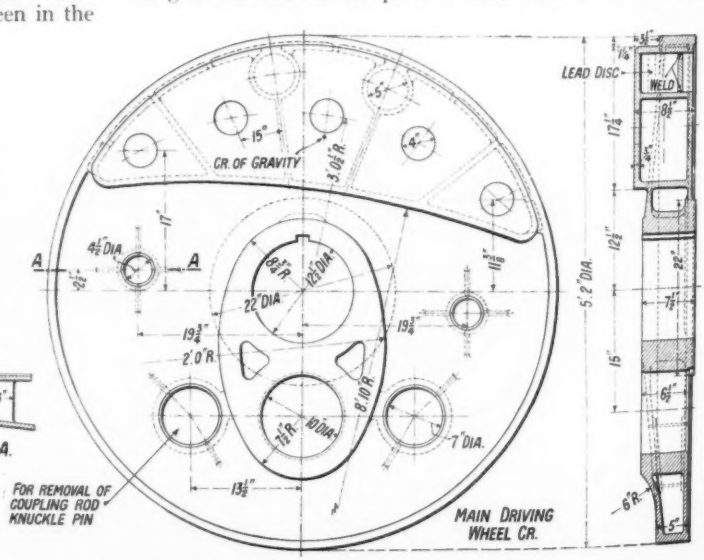
New York Central freight locomotive No. 2726, the first engine to be equipped with double-disc driving wheel centres

It is claimed for the new type of wheel centre that it does away with the uneven cooling experienced with the spoke-type after casting, and a markedly superior casting design is obtained. The standard design of spoke-type wheel centres in locomotive No. 2726 weighed just over 10 tons for the eight wheels. With the new wheel centres, after the counter-balance cavities had been filled in with lead, the total weight was nearly 1 ton less. The lead weight included 866 lb. added in cross-counter-balancing. The new wheel-centre castings alone, excluding the lead, show a saving of 3 tons 4 cwt. over the usual spoke-type centre. This reduction in weight will lessen considerably the impact of the wheels on the rails, and will thus tend to lengthen their lives and reduce maintenance costs.



To the Scullin Steel Company, St. Louis, the manufacturers of these double-disc wheels, we are indebted for the following further details. The wheels are made of A.R.A. grade "E" steel, annealed to a temperature of about 1,650° F., and air cooled. The chemical analysis is approximately 0·30 carbon, 0·80 manganese, 0·40 silicon, with phosphorus and sulphur, both below 0·030. The principal improvement from a casting standpoint lies in the uniform sections of metal, which result in an even rate of cooling in the mould, the only material change in sections being the main and crank-pin hubs, which must necessarily, as with the spoke design, be heavier to withstand the press fits of axle and crank-pin. The hub sections are, however, considerably lighter than the conventional spoke design of wheel. With the spoke design there is approximately 12 in. of unsupported rim between the centres of the spokes. Consequently, when a tyre is shrunk on, it tends to straighten the rim between the spokes, and a heavy rim is therefore required. The discs of the new wheels reinforce the hubs against the action of the press fits, and also continuously support the rim, allowing the employment of a lighter rim section than would be possible with the spoke design.

From a counter-balancing standpoint, on locomotives using small-diameter coupled wheels, such as the 2-10-2



Elevation and section of the new disc-type driving wheel

and 2-8-2 types, with 5-ft. 3-in. tyres on 4-ft. 8-in. wheel centres with 32 in stroke, the weights to be counter-balanced are so great that it is impossible to balance all of the revolving parts with the spoke design of wheel. The double-disc type has enabled the revolving weights, and in some cases the required amount of reciprocating weights, to be balanced, the practice being to balance about 50 per cent. of the reciprocating weight on one side of the engine, equally distributed among the wheels. In some cases, where exceptionally small wheels are used and the weights to be balanced are very great, it has not proved possible to balance all the weight, but a great improvement in counter-balancing over the spoke design has, nevertheless, been shown.

Coupled-wheel centres are not symmetrical when viewed from the edge, the hub fit being an average of 50 per cent. greater than the width of the rim. The tension in the tyre, which is shrunk on it and tends to compress the rim and the spokes, or the discs in the case of the new design wheels, does not act in a straight line, with the result that the wheel centre has a tendency to warp or force the hub outward. With the spoke design this warping may be as much as $\frac{1}{4}$ in., while with the disc design the average of results, so far tabulated, is about one-tenth of this amount. The continuous support given the rim by the discs eliminates flat spots requiring shims or wedges between the tyre and rim. The rim being lighter also provides additional space for counter-balancing material. The manufacturers do not produce this wheel with a solid cast-steel counter-balance. The drawings reproduced show typical examples of wheels as furnished to quite a number of American railways. After applying the lead to the counter-balance pockets it is allowed to cool, after which it is wedged to fill completely the counter-balance cavities and so as not to work loose and be reduced to a powdered form in service.

With the double-disc wheel centre generally a much more economical distribution of metal is secured than in the spoke design, the former being much lighter and stronger. The saving in weight is about 10 per cent. and the increase in strength about 50 per cent. Ability to counter-balance more weight will permit railways to work engines now under-balanced at higher speeds when the coupled wheels of spoke design have been replaced with the double-disc wheels. This increase in speed in some cases, it is said, will exceed 25 miles per hour without increasing the hammer blow on the rails, a very important consideration in view of the need for higher speeds.

A NEW WARD CAPSTAN LATHE

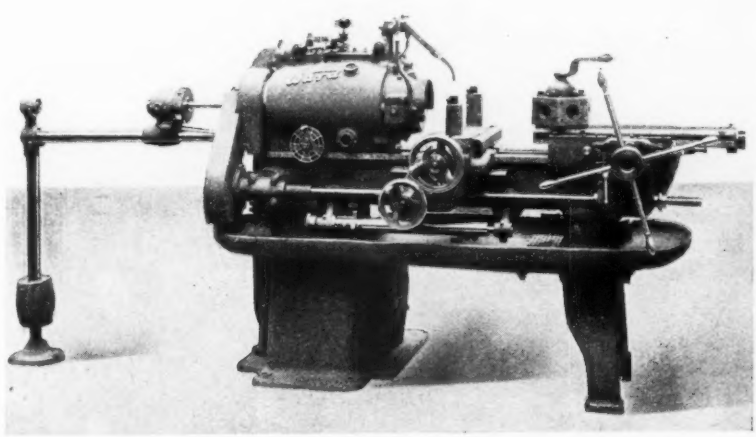
THE machine illustrated is a new capstan lathe recently introduced by H. W. Ward & Co. Ltd., of Birmingham. It is classified as the No. 3A model and is a single pulley or individual motor driven machine, equally suitable either for chuck work or production from bars up to $1\frac{1}{2}$ in. diameter. The headstock is of a new type, allowing the fastest possible speed changing through friction clutches which run in oil. Six spindle speeds in each direction are instantly available, these speeds being arranged in three groups so that two forward and two reverse speeds are obtainable without the necessity of moving gears. The three speed groups are suitable for the widest possible range of work, the low set covering steel or cast iron work, the medium set such work as may be called for on gun-metal castings, &c., and the high range for small bar work or high speed drilling and aluminium and allied materials.

The range required is obtained by the partial rotation of a lever on the front of the headstock which operates sliding gears made from high quality alloy steel suitably heat treated, and all teeth are profile ground. There are no loose gears to be manipulated and no internal belts, and " group speed " selection is practically instantaneous. A highly efficient automatic brake motion is incorporated with both clutch operating levers.

The spindle is mounted on combined ball journal and thrust bearings, together with heavy duty roller bearings and all rotating parts of the headstock, are also carried on suitable ball or roller journals. The spindle has a $1\frac{5}{8}$ in. clear hole throughout its length, and by the use of the Ward automatic chuck, bars up to $1\frac{1}{2}$ in. diameter can be handled. The single pulley is mounted on ball bearings carried in a bracket attached to the headstock, there being no belt pull on the driving shaft. The location of the single pulley makes the machine equally suitable for driving from the line shaft or by direct electric motor through suitable vee ropes.

The sliding saddle and cross slide are of rigid construction and both motions are obtained by suitable handwheels. The longitudinal motion is through rack and pinion and five stops are provided, which can be used in either direction. The cross slide is actuated through a square thread screw and nut, and dead stops are provided in each direction. An indicator dial of large diameter is also fitted.

The capstan rest can be clamped to the bed in any desired position. The slide has wide and accurately fitted bearings and is provided with taper strips, which are adjustable to take up wear. The slide is actuated by a star wheel through a pinion and rack. The turret is hexagonal in form and is provided with tool holes bored from the headstock, thus ensuring accuracy. In addition to the tool holes, each face of the turret is surfaced, drilled



No. 3A capstan lathe with new type headstock and six-speed gearbox

and recessed for the attachment of toolholders with flanged bases. The normal stroke of the stop slide when using the automatic revolve motion is 8 in. by rack and star handle, but if the turret is rotated by hand a useful stroke of 11 in. is obtainable. This extra length is particularly useful when using pilot boring bars or when turning long bolts.

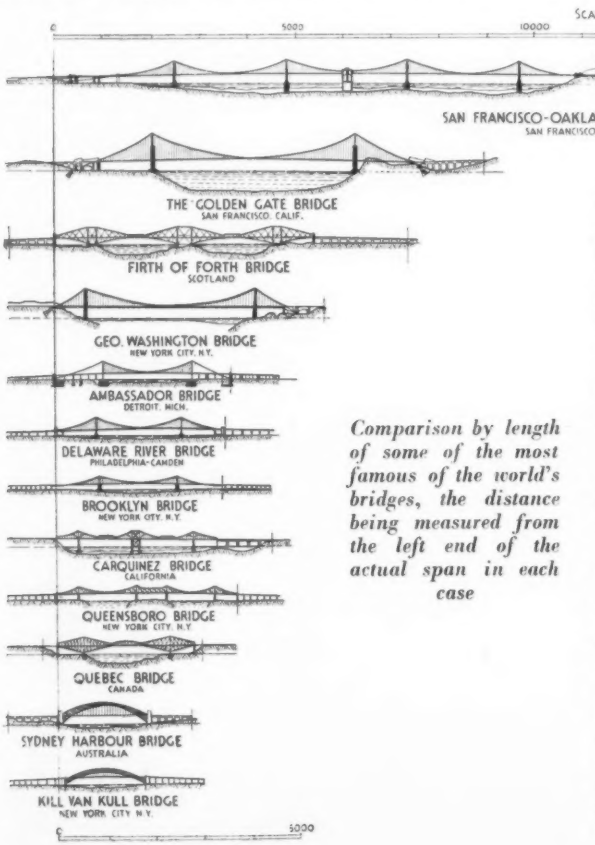
An adjustable screw stop is provided for each position of the capstan head, and these stops are mounted in a barrel carried at the end of the slide. The revolving and indexing motions are automatically performed on the return, or backward, stroke of the capstan slide, and an arrangement is provided whereby the revolving and indexing motions can be rendered inoperative at any time. This will be found a most useful arrangement when simple work calling for the use of one tool only is in hand.

The bed is of strong box section accurately surfaced and has bolted to it a suds tray of ample proportions, the whole being mounted on suitable standards. The automatic chuck, which is fitted when the lathe is intended for bar work, is designed for rapid and accurate chucking, and bars and tubes, or short pieces, for second process work. All mechanism is totally enclosed in an outer case which is bolted to the front of the headstock.

BRIDGE BUILDING AT SAN FRANCISCO

A TOTAL sum of 111 million dollars is being spent on the construction of two bridges to span San Francisco bay. Work on the larger of the undertakings, which will provide direct road communication between the parent city and Oakland, is already ahead of schedule, and the contractors hope to complete the structure by the early spring of 1937. At the same time progress is being made with the second, or Golden Gate bridge, at a narrower part of the bay. The completion of both bridges in 1937 will be the occasion for a World's Exposition. The first contract for the 75 million dollar San Francisco-Oakland bridge was awarded on February 28, 1933, and the work was put in hand at once. The *Scientific American* gives further details of the enterprise and from it we reproduce the accompanying diagram. The presence of Yerba Buena island in the middle of the bay constitutes at the same time an assistance to the work of construction and an obstacle. By providing a natural half-way anchorage, it has made it possible for the bridge to be divided into two sections. The first, from San Francisco to Yerba Buena, will be a 10,450-ft. suspension bridge with two main spans, each 2,310-ft. in length, meeting at a central concrete anchorage. Continuing from the island to the opposite shore of the bay, the bridge will consist of one 1,400-ft. cantilever span, five simple spans, each more than 500-ft. in length, and a mole supported by concrete and wood piles. In order to maintain the same level throughout the length, the hills of Yerba Buena island will have to be pierced by a tunnel 540-ft. in length.

The roadway will be double-decked throughout. The upper deck is designed to carry six lines of private motor traffic and the lower will accommodate three lines of heavy lorries and a double tramway track. In order to provide for the passage of this two-level traffic stream without forming a bottle-neck, the Yerba Buena tunnel will have a bore of 76-ft. by 58-ft., the largest in the world. Bright surfaced steel is to be used to line it throughout. The construction of the bridge is being carried out simultaneously from both shores of the mainland and of Yerba Buena island, where excavations for the tunnel are already well advanced. The bridge will have a capacity for a total vehicular traffic of 30,000,000 a year. The upper deck is designed for a continuous congested load of 12½-ton vehicles, with an occasional maximum of 15-ton vehicles. The lower deck is designed for a maximum of 40-ton vehicles and 70-ton interurban cars.



Comparison by length of some of the most famous of the world's bridges, the distance being measured from the left end of the actual span in each case

ENGINEERS' PURCHASING GUIDE.—This new purchasing guide, which will be published in the autumn, has been compiled to enable the engineer without specialised knowledge to frame an enquiry for machinery, plant, or equipment so that no essential data are omitted. The main sections will deal with articles arranged in alphabetical order and covering every branch of engineering, the general scheme for considering each item being:—(1) Practical definition, (2) condensed specification, (3) enquiry data and questionnaire, (4) typical or standard prices for estimating purposes and (5) a list of the principal manufactures and suppliers. Other sections will enumerate all the principal standard specifications, engineering associations and institutions, consulting and inspection engineers, insurance information and industrial data. So comprehensive a volume should, therefore, be of considerable value to engineers in every branch of the profession.

ELECTRIC STAFF WORKING, VICTORIAN GOVERNMENT RAILWAYS

APPROXIMATELY 2,100 miles of single line track on the Victorian Government Railways are operated under the electric train staff rules, requiring the use of 570 staff instruments. In order that fast main line trains can exchange staffs at high speeds, 105 automatic exchanging ground apparatus have been installed and 78 engines equipped to permit exchanging to be effected at speeds up to 50 m.p.h.

Many stations which are equipped as staff stations are not required as such for certain periods of the day. In order to reduce the number of operators at these points, a trial installation of staff switching instruments was installed on one section in 1923. These instruments—one terminal and two intermediate—were supplied by McKenzie & Holland (Australia) Pty. Ltd., being similar to those described on page 514 of THE RAILWAY GAZETTE of October 4, 1929. This method of operation requires a terminal switching instrument at one of the stations at which the long section staff instruments are located, together with an intermediate switching instrument at each of the other switching stations. During short-section working a long-section staff is secured in the terminal switching instrument. This staff can be released only when a short-section staff is locked in each intermediate switching instrument as well as one in the terminal instrument.

Prior to this installation the Victorian Railways had developed a staff switch instrument for use at certain stations which were required to be opened as staff stations only on special occasions. This consists of a device, Fig. 1, containing three receptacles, R1, R2, R3, into which the staffs are inserted and locked in by turning the staffs in the case of the large type, or the small handles in the case of the miniature type, through an angle of 90 deg. Normally, when the station is closed as a staff station, staffs for the short-sections on either side are secured in the outer receptacles. When it is required to open the station for staff working, a train proceeds through the section on a long-section staff, which, when the train arrives at the switching station, is inserted in the centre receptacle R2 of the switching instrument and turned through an angle of 90 deg., locking this staff in the instrument and revolving cam C2 to a position that frees the locking of cams C1 and C3, allowing the staffs for the two short-sections in receptacles R1 and R3 to be turned and withdrawn, the cam C2 now becoming locked and thus securing the long-section staff. The train then proceeds on the staff for the short section in advance and the staff for the section in the rear is inserted in the staff instrument and the train-arrival signal given. When it is desired to close the station as a staff station, this sequence of operations is reversed.

The objection to making use of this type of switching instrument for stations which require to be opened and closed daily is the necessity for a train to proceed through the section, both for opening and closing of the station.

In order to overcome objections, an electric lock was incorporated in the switching instrument, Fig. 2. This consists of a set of standard battery-operated staff magnet coils M, each side wound to 90 ohms, the armature A of which is arranged to lift a lock L engaging with a locking sector S secured to the centre cam C2. In the centre receptacle is fixed an operating handle H having two positions—*in* and *out*. When the operating handle is turned, the first movement causes the lifting cam K to raise the magnet M which, if correctly energised, lifts armature A with it, thus raising the lock L clear of the slot in the locking sector S, permitting the operating handle to be turned from the *switched out* to the *switched in* position. A key-operated switch, showing *switched in* and *switched out*, is mounted on the top of the switching instrument.

When it is required to close the staff station, a staff is obtained for each of the short-sections. These are inserted in the outer receptacles R1, R3 and turned through 90 deg., locking the staffs in the instrument and bringing cams C1 and C3 into position to allow cam C2 to be moved by turning the operating handle to the *Out* position. In this position the lock L engages in the slot of the locking sector S, preventing the handle from being returned to the *In* position. The key switch is then turned to *Switched Out*, the through line circuit being completed through contacts on the operating handle and the key switch. Long-section working can then be be conducted.

When it is required to open the intermediate station, the operator there exchanges the necessary signals with the station on each side of him, when, provided the section is clear and all long-section staffs are in the instruments, the operators at the outer stations hold down the bell keys of the through section instruments. The key switch of the switching instrument is then turned to *Switched In*, which connects the two sides of the long-section line through the two windings of the lock coil. Provided the instruments for the long-section are in phase, the lock will be released, allowing the operating handle to be turned to the *In* position, after which the short-section staffs can be turned and withdrawn and short section working resumed. The turning of the short-section staffs to enable them to be withdrawn connects each section of the long section line to earth.

Where it is required to close more than one intermediate station between two terminal stations, a switching instrument, as described above, is installed at the first intermediate station, which becomes the master station, while at each other switching station a modified switching instrument is provided. When the stations are to be closed, the master station obtains

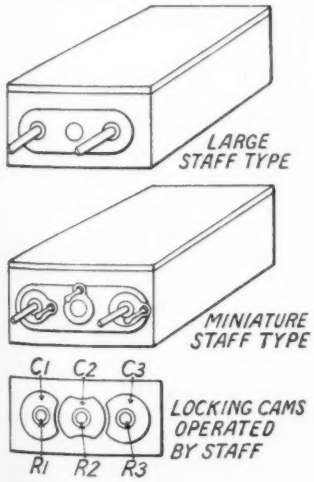


Fig. 1

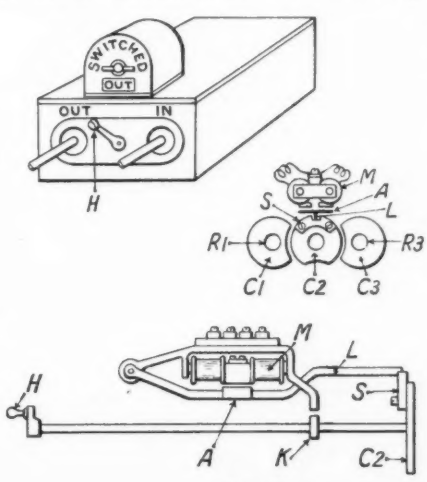


Fig. 2

the two short-section staffs and switches out as previously described. Each other switching station obtains a staff for the short-section on the side farthest from the master station. This is inserted in the right-hand receptacle of the switching instrument and turned. The operating handle is then turned to *Out*, in which position it becomes locked, bridging the through-section line and securing the short-section staff in the switching instrument. When the operating handles of all the switching instruments have been turned to *Out*, the through-line circuit is completed and long-section working can be operated. In these modified switching instruments no electric lock coils are fitted and the cam C1 is cut away, enabling the operating handle to be turned with a staff in the right-hand receptacle only.

When short-section working is to be resumed, the master station first switches in as previously described. After cancelling the staff for the section between that station and

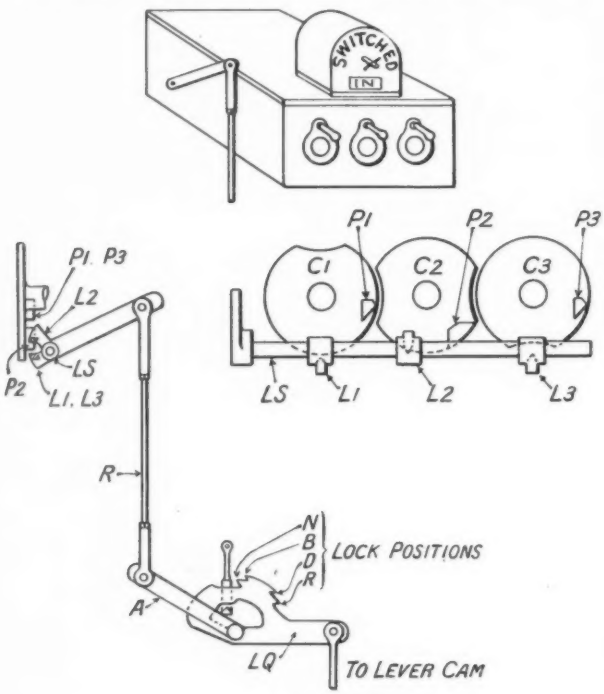


Fig. 3

the next adjacent switching station, the operator at this latter station obtains a staff from his instrument for the same section, places it in the left-hand aperture of the switching instrument and gives it a quarter turn. This mechanically unlocks the operating handle, allowing it to be turned to the *In* position, thus permitting the other short-section staff to be withdrawn and cancelled. The staff in the left-hand receptacle is also free to be turned and withdrawn. Each of the remaining intermediate switching stations is successively switched in in the same manner.

In order to apply this system to stations equipped with interlocked points and signals, the electric lock is not installed in the switching instrument, but the king lever in the locking frame is equipped with a standard electric lever lock mounted behind it, Fig. 3. An arm A keyed to the shaft of the lever lock quadrant LQ transmits the lever movement through rod R to the lock shaft LS of the switching instrument, which is mounted on the block shelf above the levers. The locking shaft LS carries locks L1, L2, L3, which interlock with projections on the cams C1, C2, C3. Associated with the operation of the lever lock are two polarised relays.

When the signal-box at an interlocked station has to be closed, a short-section staff is obtained for each section. These are inserted in the outer receptacles of the switching instrument, given a quarter turn, which securely locks them in, and the key switch on the top of the switching instrument is turned to *Switched Out*. Contacts, operated by the cams C1, C3 and by the key switch, complete the circuit for the lever lock on the king lever, which can then be pulled to a midway position. This releases the locking between the opposing arrival home signals, which are then pulled off, together with the starting and distant signals for each direction, after which the king lever is fully reversed, becoming locked in this position by the lever lock.

As soon as the king lever is moved from the normal towards the reverse position, locks L1 and L3 in the switching instrument, by means of the lever movement transmitted through rod R, engage with the projections P1 and P3 on cams C1 and C3, preventing these from being revolved. Thus, when the king lever is pulled over to the switched-out position, the short-section staffs are secured in the switching instrument. The circuit for the through-line is completed through a reverse contact on the lever lock and through contacts on the cams C1, C3 and the key switch, thus enabling through-section working to be operated.

To open a signal-box, the operators at the outer stations, after exchanging the necessary bell signals, hold down their ringing keys on the through-section instruments. The key switch on the switching instrument is then turned to *Switched in*, which connects the two sides of the long-section line to earth through the coils of the two polarised relays. Providing the instruments for the long-section are in phase, the polarised relays will both be operated to make similar contacts, which completes the circuit for the lever lock on the king lever, allowing it to be returned to the centre position. After restoring the signal levers to normal the king lever can be fully restored. This final movement removes the locking between the locks L1, L3 and the cams C1, C3, thus allowing the short-section staff to be turned and withdrawn, which final movement causes the two halves of the long-section line to be earthed. Provision is made, on methods described in our articles on " The Operation of Single Lines of Railway " during 1929 and 1930, for a train, travelling on a through-section staff, to do shunting operations at the switched-out station.

Up to the present time five of these installations have been completed, three further installations are under construction and several possible installations are being investigated. In dealing with the financial aspect, the main consideration is the saving of operating staff. Some stations are, however, operated for part of the day as unattended stations, under rules which require the signalman, before going off duty, to obtain a staff for the section on one side and to give a release to the operator at the adjoining station for a staff for the other section. The staff obtained is locked in a box accessible to the members of the train crew. Train operation is then permitted through the section, a member of the train crew being responsible for exchanging the staff for the section in the rear for the staff for the section in advance.

As the cost of stopping a heavy train, which may not otherwise have to stop, for the time required to perform this operation may be as high as ten shillings, it is apparent that the installation of switching instruments would become a paying proposition if many such stops had to be made; one train each way per day costing over £300 per annum. There is also the beneficial effect of higher average train speed and the psychological effect which express running has on members of the train crew in keeping to schedule.

MODERN APPLIANCES FOR LIGHTING—II

Railway Stations

IT has already been pointed out in these pages that in the absence of such evils of artificial illumination as glare and excessive contrast, the human eye is able to perceive surrounding objects far more clearly and with a minimum of discomfort. This proposition may now be amplified into the statement that by eliminating the handicaps arising out of a faulty disposition of lights it is possible to ensure equal or increased visibility with fewer or less powerful units. Improvements of no small importance can often be wrought by merely moving one light here or by shading another there, and as these changes are to be made with very little expenditure on new equipment they should come first on any programme of alterations. There are two other directions in which economies may sometimes be effected. First the light source itself, if inefficient, may be changed or modified so as to deliver greater output for the same or a lower expenditure of energy. Secondly the rays emitted by the lamp, if not already under proper control, may be directed where they are required instead of being wastefully scattered towards the unilluminable heavens or over surfaces it is not advantageous to render visible. Under this heading of light control may be considered not only the shades, reflectors, and other devices incorporated in fittings, but also the finish of walls, ceilings and other surfaces to be lighted.

Fig. 1—Booking hall at Shenfield, L.N.E.R., lighted by Thomas fittings

Influence of Wall and Roof or Ceiling Finishes on the Choice of Fittings

Since the ultimate destination of all usefully employed light must be the eye, it is obviously a waste of energy to illuminate surfaces which are so dingy as to absorb the entire body of incident rays. If such surfaces are unrelieved by any features it is absolutely essential to render visible, they are best left in the dark. At the opposite extreme come brightly polished wall surfaces which return nearly all the incident light and are liable to provide reflections of brilliant filaments or mantles. These must be illuminated with restraint or from below if the evil of glare is to be avoided. White tiles not too highly glazed and the lighter paints and distempers contribute towards good shadowless illumination. The lighting units depicted in Fig. 1 (which is of the booking hall of the new Shenfield station, L.N.E.R.) and in Fig. 2 (which is of the enquiry office at Victoria station, S.R.) are of excellent modern types, but the effects they are able to produce are enormously enhanced by the whiteness of the interior decorations. Thus it is no exaggeration to say that, to fittings of the type depicted, which spread the light instead of concentrating it, the ceiling and wall surfaces are complementary. Over the platforms of a smoke-begrimed station, or in a waiting room of the traditional green-walled variety, dispersive fittings like those shown would be ornamental but practically useless, and the greatest economy in such places is to be obtained by focussing the light narrowly on one or two objects it is specifically desired to see, or by distributing it over a particular plane containing many such objects. In a waiting room the top of the table defines the plane to be illuminated. The vitreous enamel shade serving the double purpose of a reflector and a protector against glare

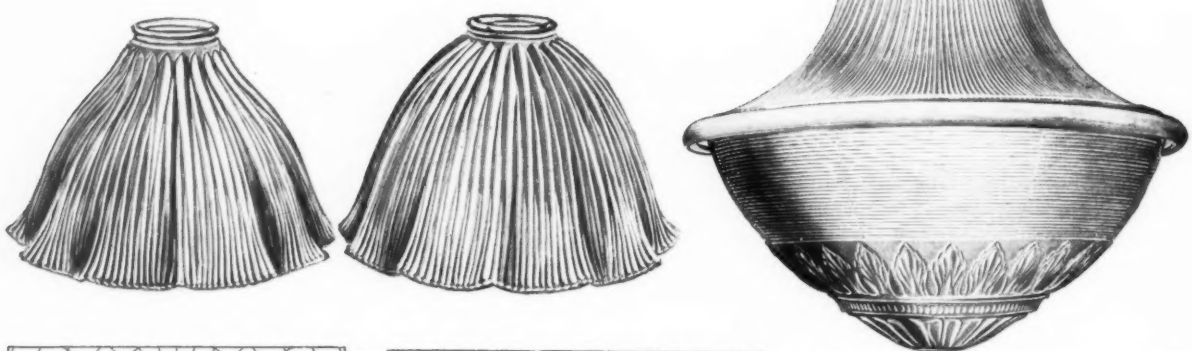
Fig. 2—Enquiry office at Victoria station, Southern Railway, lighted by Holophane fittings

is one of the cheapest and most efficient devices for producing the desired concentration. Such fittings give about the best results it is possible to obtain in comparatively drab places and are obtainable in many sizes from Benjamin Electric Limited, a firm which specialises in a heavy gauge die-pressed article, accurately trued by roller spinning before enamelling and again by pressing immediately after the firing. They are also obtainable from the General Electric Co. Ltd. and from the other well-known suppliers of lighting equipment.

Where the waiting room ceiling is white and in good condition the opaque shade may be replaced with advantage by one which lets a little light spread upwards. Glass fittings of the kind shown in Fig. 3 are excellent for this purpose. The left-hand fitting concentrates the light within a fairly small circle below it, while the right-hand one gives an almost even intensity over a very wide area.

Prismatic Glass Fittings

Having the appearance to a superficial observer of shades which can be bought for about a shilling at any domestic stores, the fittings of Fig. 3 are in reality fine pieces of optical work by Holophane Limited, each being an assemblage of scientifically proportioned prisms moulded in a clear crystal glass specially tempered to withstand heat. Light strikes the interior faces of the prisms at the critical angle and is thus reflected without the aid of quicksilver. The crevassed upper surface can become clogged with dirt without affecting



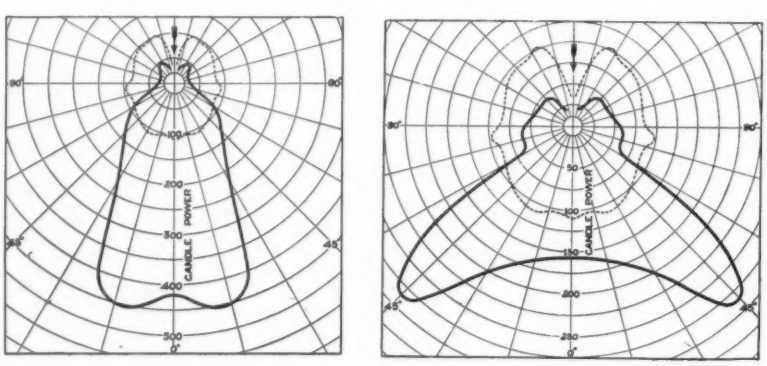


Fig. 3—Distribution curves: .....Lamp alone; ——Lamp with reflector

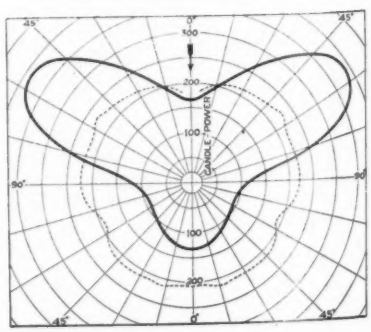


Fig. 4— .....Lamp only; ——Lamp with bowl

Figs. 3 and 4—Holophane prismatic glass fittings. That on the extreme right is as used in Victoria station enquiry office (shown in Fig. 2)

either the amount of light reflected or the amount transmitted through to the ceiling. This seemingly paradoxical result is due to the fact that reflected light has only to pass through the smooth inner surface of the shade, while the transmitted light passes out mainly along the slightly radiused apex ridges of the prisms, which stand clear of dirt deposits. Fig. 3 illustrates but two of the many prismatic glass fittings available for the scientific solution of lighting problems. Figs. 2 and 4 show a much more elaborate prismatic glass fitting. Here the lower bowls are reflectors transmitting but little of the incident light, while the upper bowls transmit and disperse by refraction nearly all the light impinging on them.

Fig. 6—Booking hall at Southgate, London Transport, station

Benjamin, Holophane, G.E.C. and other scientifically designed appliances for light control should be used only in conjunction with the lamps and lamp-holders for which they are proportioned. The distribution will be adversely affected if the light source be out of place.

"Efteelite" Diffusing Glass

The units shown in Fig. 1 are by Fred. Thomas and Co. Ltd. In these the light is dispersed by the use of Efteelite diffusing glass panels. These have the appearance of ordinary opal glass by day, but at night they show up as large, warm sources of light uniformly bright. Panels of ribbed and silvered glass inside the Thomas units assist in producing this uniformity and the light radiating area is so greatly increased beyond that of the ordinary bare lamp that a unit, or indeed a row of units crowded together, can be surveyed from a distance of a few feet without any discomfort from glare. These uniformly bright glass panels make an excellent background for lettering as can be seen from Fig. 5, which depicts a Thomas platform lamp mounted on a column in the open. Slightly modified and turned upside down the unit of Fig. 5 can be used as a suspension fitting over covered-in platforms. Several are so used at Shenfield and Harold Wood, L.N.E.R. Judging from the difficulty most people seem to have in ascertaining the names of stations in this country it is felt that more fittings of the kind shown in Fig. 5 would be much appreciated.

Fig. 5—Platform electric lamp by Fred. Thomas & Co. Ltd.

Lighting on Electrified Railways

One more example of clever light control in a station must suffice. It is picked from dozens afforded by the Underground railways of the London Passenger Transport Board. Working in close touch with the General Electric Co. Ltd. these railways have set altogether new standards in station lighting. The example chosen for Fig. 6 is the booking hall at Southgate. Here again the lighting is primarily indirect, for the illuminated ceiling and walls contribute the bulk of the rays reaching the space traversed by passengers. The small supplementary lights provide extra illumination round the walls, but their main purpose is to relieve the rather chilly and austere appearance wrought by purely indirect lighting. The Underground and other wholly electric railways can contemplate more efficient and more pleasing schemes for station lighting than the main line railways on account of the absence of fumes and dirt from locomotives, but the contrast between the newer Underground stations and some of the important stations of older companies is more to the disadvantage of the latter than is strictly necessary. The practice of putting new lamps into old fittings has been carried much too far, and where electricity has not been available for lighting its imminence has too often been made an excuse for retaining year after year the worst and oldest of lighting appliances.

Efficient Lighting with Gas and Oil

In reality splendid results are obtainable with incandescent mantle gas lamps and even with paraffin oil. Hence instead of contemplating the distant prospect of being able to wire for electricity, the railway which must use gas or oil should investigate the possibilities for improved lighting afforded by the use of these agents in the

most modern burners. Units not too primitive to merit scrapping can be rendered less wasteful by the incorporation in them of prismatic or mirror devices. The former, made by Holophane Limited, and the latter, made by the Sugg Company, are already widely used in public street lamps, and such fittings, as has already been mentioned in these pages, are also in use in platform lamps on the Great Western Railway. Not even with paraffin oil is there an excuse for poor lighting. The Tilley paraffin vapour mantle type of lamp fitted with the Benjamin Rodalux reflector makes a highly efficient unit for platform lighting, while a similar lamp with a different reflector will provide a waiting room or booking hall light equal in brilliancy to anything found in electrified areas. Great Western Railway applications of the Tilley lamp have already been illustrated in these pages. Furthermore, test figures have been published showing that the cost of paraffin vapour lighting is such as to make it worth considering for all but the most insignificant of country stations.

Fig. 7 (left)—New Tilley lamp for permanent way work

Fig. 8 (below)—Station in Holland lighted by Philips Philora lamps

Electric Gas Discharge Lamps

The modern gas-filled electric lamp is so greatly ahead of the older vacuum and carbon lamps from the point of view of light output per watt that an advance on their performance, though welcome, comes as something of a surprise. The multiplication of the useful output by three and no increase in the energy consumption is the improvement wrought by the new electric gas discharge lamps. Supplied with alternating current through a choke, the new lamp appears as a glowing tube several inches long and from one to two inches in diameter. Different firms fill their lamps with different gases, so that the colour of the light varies. Thus the G.E.C. Osira lamp, which contains mercury vapour, gives a bluish light, verging on green if seen through a slight mist or haze. The Philips Philora lamp gives the purely mono-chromatic light characteristic of sodium.

Like the familiar Neon tube, gas discharge lamps produce a stroboscopic effect, and for this reason they are unsuitable in places where there is rapidly running machinery. Another drawback is that objects viewed by their light appear altered in colour, or even colourless, so that the many hued modern poster loses much of its appeal under their illumination. For the same reason attractively dressed women do not feel their best by the light of gas discharge lamps, and the friend who is encountered after many years under one of the new lamps might readily be taken for the ghost of his former self.

Regarding the limitations of the new lamps, the manufacturers are commendably frank, and no attempts are being made to introduce them where they might fail to give satisfaction. The Osira and the Philora lamps are both very suitable for motor highway and station approach lighting, and also for certain kinds of works and yards, but for the lighting of arrival platforms of ordinary passenger stations they are not being recommended at present. Changes in their contents or construction may render them equal to all occasions in the future, but more harm would be done than good by installing them everywhere in their present form simply for the sake of the economy they give. At a few stations, frequented only by black-coated city workers always in a hurry, no exception could be taken to the new lamps, while in goods stations, in cattle sidings and for dock lighting they should undoubtedly prove to be a profitable investment. Fig. 8 is a night view of a severely utilitarian looking passenger station in Holland where Philora lamps have been installed. There are no posters to suffer a loss of effect under the yellow sodium light and passengers intent on merely entering or leaving trains obtain the benefit of much brighter lighting than could be secured with the earlier kind of unit consuming an equal amount of energy.

The G.E.C. is able to announce the successful application on an extensive scale of the Osira lamps to colour flood-lighting. Several large and important buildings in South Africa were illuminated by their aid on the occasion of Prince George's recent visit. The same treatment

might be accorded to the exteriors of the more imposing modern railway stations of this country. Attractive stations are usually an indication of attractive rail facilities, and parsimony in the matter of lighting can generally be interpreted to mean that trains are few and far between. Believing that it pays to look bright and alive, the Underground railways of London set an example in this also, and many of their stations can be seen from a considerable distance, suggesting that trains are also in the offing. Many of our main line railway stations can only be found by falling over them once darkness has set in, and the temptation to look for a motor bus is very strong when a passenger finds the booking office shutter down and only one light in every two revealing his whereabouts.

Applications of gas discharge lamps in yards and workshops will be described in a subsequent article, but it may be mentioned here that Osira lamps have proved excellent for lighting foundries, where their peculiarly brilliant bluish light facilitates the discovery of faults in moulds and finished castings. When used in works, the units should be placed rather high because of the great intensity of their rays. The stroboscope effect can be rendered less objectionable by supplying the units from the different phases of a 2 or 3 phase supply.

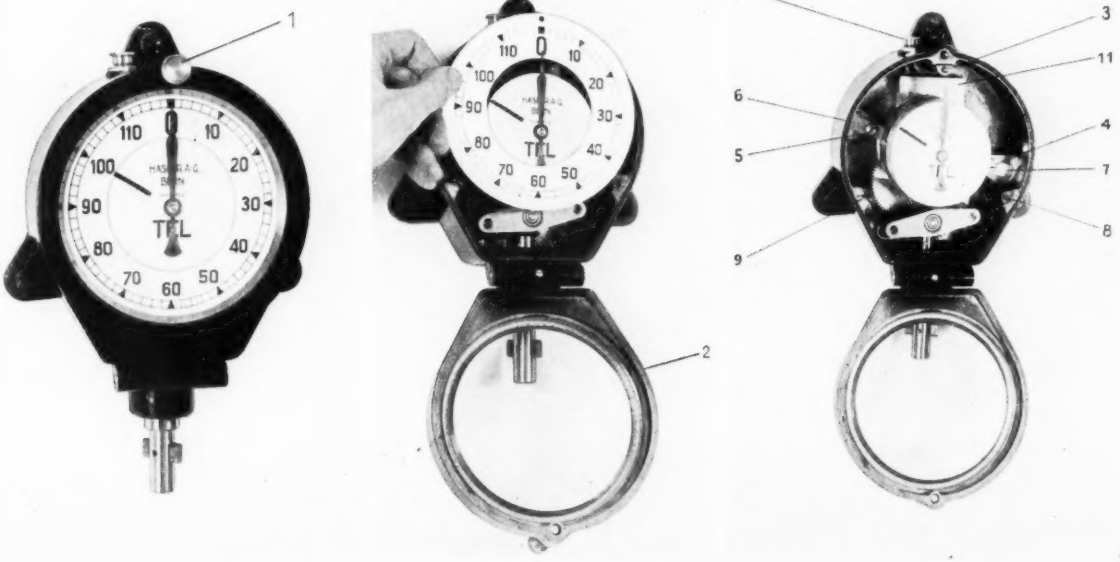
(*See editorial comment on page* 921.)

Fig. 9—G.E.C. night lighting on an open-air tube station

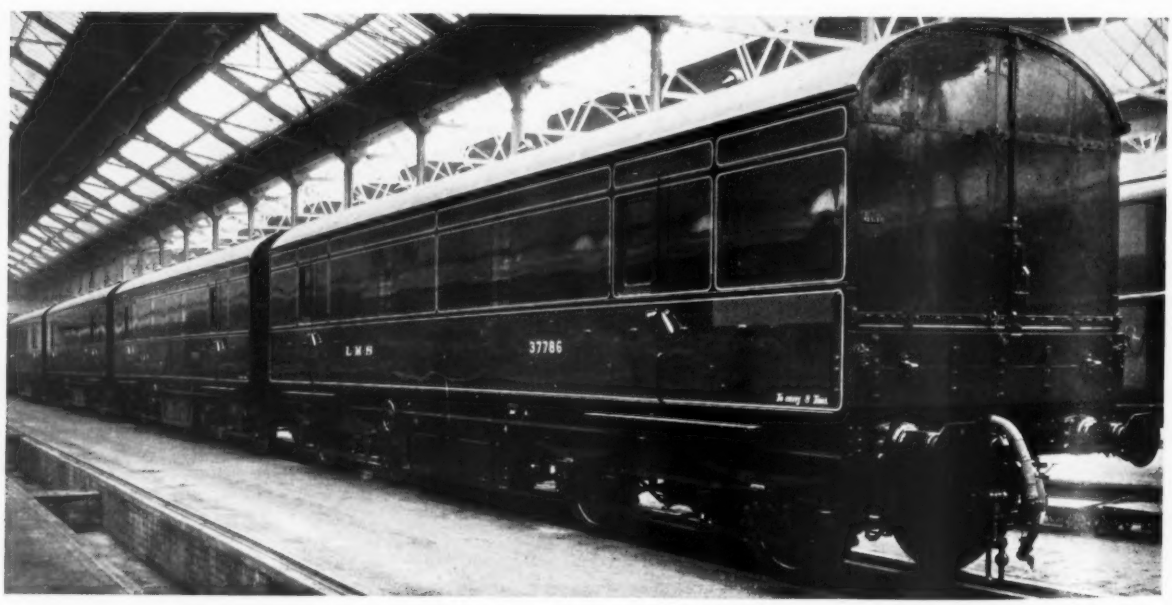
THE NEW HASLER SPEED INDICATOR FOR LOCOMOTIVES

FOR many years speed indicators and recorders for railway service have been made by the Hasler Telegraph Works of Berne, Switzerland, and 26, Victoria Street, S.W.1, from whom we have received particulars and photographs of the Tel (1931) instrument. The distinguishing features of this indicator are its compactness and lightness, as well as the ease with which it can be withdrawn from its case and replaced by another without interfering with any other portion. To effect this change the screw 1 is first slackened sufficiently to allow the cover 2 to be lowered. The dial can then be disengaged from the pin 3 and lifted upwards clear of the needle. This exposes the interior of the apparatus. The two screws 4 and 5 can then be slackened in turn and this will allow the clamping pieces 6 and 7 to turn under the action of springs, not seen in the illustration. The movement is then free to be taken out bodily.

Separate movements are supplied in tin containers and they should always be forwarded in them when being sent in for repairs. Oiling is, as a rule, necessary only once weekly, unless the locomotive is running in heavy service, when twice weekly is advisable. The oil is applied without opening the casing at the lubricator cap 10 and it is recommended that only the oil supplied by the manufacturers be used. In any case oil having a fairly high viscosity should be used. The Tel instrument is purely an indicator and contains no recording mechanism, such as is universally used on the French railways. The Hasler Telegraph Works, however, manufacture several types of recording speed indicators.



New Zealand Government Railways mixed train working through the forests of Central North Island



A batch of new general utility vans, L.M.S.R., at the Wolverton works just completed for service. These vans were described on page 160 of our July 28 issue of last year and are designed to carry a wide range of traffic such as ordinary luggage, parcels, pigeons, fruit, scenery and motor cars. They are mounted on steel underframes and have timber-framed bodies with sides, roofs, and ends panelled in steel. The vans measure 42 ft. 1 in. by 8 ft. 6 in. over body, and have an extreme length over buffers of 45 ft. 8 in. The weight empty is 25 tons

RAILWAY NEWS SECTION

PERSONAL

We are glad to learn that Lord Ashfield has now left hospital and that his sight is expected to be completely restored.

The directors of Kendall and Gent (1920) Limited have elected Mr. Alan Chorlton, M.P., to be a member of the board.

Mr. C. E. Lloyd, a Director of the Great Western Railway, has been elected to the board of the National Bank of Scotland.

The Council of Paris University has conferred the honorary degree of Doctor of the University upon Sir William Beveridge, Director of the London School of Economics.

INDIAN RAILWAY STAFF CHANGES

Mr. G. A. R. Trimming has been appointed Deputy Chief Mechanical Engineer, E.I.R., as from January 28.

Mr. H. E. Rose has been appointed to officiate as Signal Engineer, E.B.R., as from February 7.

Mr. E. L. Manley has been appointed to officiate as Deputy Agent, Organisation, E.B.R., as from March 10.

Mr. R. N. S. Iyer has been appointed to officiate as Deputy Chief Accounts Officer, G.I.P.R., as from March 31.

Mr. S. C. Das Gupta has been appointed to officiate as Deputy Chief Accounts Officer, Burma Railways, as from April 3.

Mr. M. Subrahmanyan has been appointed to officiate as Director, Railway Clearing Accounts Office, as from April 3.

Mr. P. C. Chaudhuri has been appointed to officiate as Deputy Director, Railway Clearing Accounts Office, as from April 3.

Mr. L. F. W. Nolan, Deputy Agent, A.-B. Railway, has been granted six months' leave as from May 2 and Mr. W. H. Prendergast has been appointed to act in his place.

Mr. Kenneth Cantlie, Consulting Expert to the Chinese Ministry of Railways and a Member of the Board of Trustees of the British Boxer Indemnity Fund, left China for Europe on April 10. Mr. Cantlie will study the latest railway developments in England and on the Continent, and will return via America.

Mr. J. Williamson, V.D., M.I.E. (India), Agent of the Bengal & North Western Railway, who, as announced in THE RAILWAY GAZETTE of January 19, had been elected President of the Indian Railway Conference Association for the year 1934-35, assumed office on April 1. Connected throughout his service with metre gauge railways in Northern India, Mr. Williamson, was first engaged on the construction of the northern sections of the Bengal Dooars Railway. Upon their completion, he was transferred to the B. & N.W. Railway, being occupied for some years upon surveys and construction works. He was subsequently appointed Divisional Engineer, Mansi (Tirhut), where the Ganges and numerous alluvial rivers, flowing in unstable beds, afford unique opportunities for the study of river training and protection. Mr. Williamson was promoted to be Chief Engineer in 1920 and in 1928 was appointed Agent of the combined Bengal & North Western and Rohilkund & Kumaon Railways system, which totals 2,687 miles. Though these lines are company-owned and worked, there are combined with them the Tirhut and Lucknow-Bareilly State Railways which are managed by these companies on behalf of the Government of India. Mr. Williamson commanded the United Provinces Horse in post-war years and is Colonel of the B. & N.W. Railway Auxiliary Force and Honorary A.D.C. to the Governor of the United Provinces. He is a Member of the Institution of Engineers, India.

Mr. J. Williamson, V.D.,

Agent of the Bengal & North Western Railway and President of the Indian Railway Conference Association, 1934-35

We regret to learn of the recent death of Dr. Angel Gallardo, Chairman of the Local Board of the Buenos Ayres & Pacific Railway Company. A brief biographical paragraph and a photograph of Dr. Gallardo were published in THE RAILWAY GAZETTE of December 1 last.

Count Ciano, who, as announced in THE RAILWAY GAZETTE of May 4, has relinquished the Italian Ministry of Communications to become President of the Chamber, was born at Leghorn in 1876, entered at an early age the Naval Academy at this port and took part in the Lybian campaign. During the war he was promoted Commander in 1915, Captain for exceptional merit in 1917, and Commodore for war service in 1918. In 1917 he was appointed Inspector General of the Flotillas of MAS (special fast motor-boats fitted with one or two torpedoes) and took personal part in some of the most daring naval exploits, among them the famous Buccari raid when he, together with the poet D'Annunzio, who had the naval rank of Commander, sank the Austrian flagship inside the harbour of Pola and severely damaged one or two other large units. He was several times wounded in action and decorated with the gold Medal for Valour (equivalent to the Victoria Cross), four silver Medals for Valour, and with the coveted Military Order of Savoia. After the war he was promoted Vice-Admiral and in 1921 was elected Member of Parliament for his native town and became one of the first followers of Signor Mussolini. With the advent of the Fascist Regime, Admiral Ciano was appointed Under-Secretary of State for Naval Affairs (under Signor Mussolini as Minister) and he was also Commissioner of the Mercantile Marine, a title he retained during the time he was Minister of Posts and Telegraphs. When

in 1924, the Ministry of Communications was created under which are the postal, Telegraph, Mercantile Marine and State Railway Departments, and the General Inspectorate of Secondary Railways, Tramways, and Automobiles,

Vice-Admiral Count Ciano,
Italian Minister of Communications, 1924–34

Admiral Ciano was called to fill this position, for which his technical training, his extraordinary organising capacity, and his dynamic personality made him eminently suitable. The complete re-organisation of the State Railways and of the Mercantile Services, the vast improvement effected under his administration in these and the other services of the Ministry of Communications, have made Admiral Ciano probably the most successful Minister of Communications in Europe. The eminent services rendered by him in this capacity found due recognition by the King of Italy, who conferred upon Admiral Ciano the title of Count of Cortellazzo in remembrance of his naval exploit at this place.

Signor Umberto Puppini, who, as announced in THE RAILWAY GAZETTE of May 4, has been appointed the new Italian Minister of Communications, was born at Bologna in 1884. He graduated at the Superior Institute of Engineering of Bologna and became Professor of Hydraulics at this institute. He is the author of a number of works on hydraulics, hydraulic construction and other scientific books and obtained the Boileau Prize of the French Academy of Science. He became successively Mayor of Bologna, Member of the National Council of Scientific Research, Member of the Superior Council of Public Works, and was nominated in 1932 Under-Secretary of State for Finance.

Mr. L. D. Morison, M.Inst.C.E., who, as announced in THE RAILWAY GAZETTE of February 9, has been appointed Chief Civil Engineer, Nigerian Railway, served as an Assistant Engineer on surveys and construction, Cape Government Railways, from 1905-08, proceeding in the latter year and in the same capacity to the North Western Railway of Peru. In 1910 he was promoted to be District Engineer, and was in charge of a number of important works for the Peruvian Corporation between then and 1913. Mr. Morison went to Cuba in that year as District Engineer on maintenance for the United Railways of the Havana and served upon that and other railways and works in the island until 1921, when he was appointed Engineer-in-Charge of the construction of Ebute Metta workshops, Nigeria, for Sir W. G. Armstrong, Whitworth & Co. Ltd. Three months later he resigned and went to Canada as Engineer-in-Charge of various works for the Western Construction Co., Victoria,

Signor Umberto Puppini.
Appointed Italian Minister of Communications

B.C. In 1923 he returned to Nigeria as District Engineer, Capital Works, Nigerian Railway. Four years later Mr. Morison was promoted to be Divisional Engineer, the position he has held until his promotion this year as Chief Civil Engineer.

Mr. L. D. Morison, M.Inst.C.E.,
Appointed Chief Civil Engineer, Nigerian Railway

Mr. W. A. Sargent.
Appointed Assistant, Chief Operating Manager's Department, Euston, L.M.S.R.

Mr. C. R. Irving.
Appointed District Engineer, South Wales District, Abergavenny, L.M.S.R.

Mr. W. A. Sargent, who, as already announced, has been appointed Assistant, Chief Operating Manager's Department, Euston, L.M.S.R., entered the service of the former Midland Railway in 1889 as a Junior Clerk in the Assistant Locomotive Superintendent's

Office, Derby. From 1894 to 1907 he dealt with freight engine workings, and assisted with train times, speeds, loads, and staff work. In August, 1907, Mr. Sargent was transferred to the Traffic Department under Sir Cecil Paget, who a short time previously had been appointed General Superintendent. Soon after this date Mr. Sargent was instrumental in introducing the present method of scheduling trains by the aid of train diagrams (illustrated in THE RAILWAY GAZETTE of July 8, 1921), and assisted in the organisation of the control system and revised train working arrangements on the Midland Railway. In October, 1912, he was made Shipping Coal Controller; in August, 1914, he became Assistant Superintendent of Freight Trains; in January, 1917, he was appointed Superintendent of Operation's Assistant; and in August, 1919, General Superintendent's Assistant. From August, 1914, Mr. Sargent was responsible to the General Superintendent for the transit of troops, &c., over the Midland system, and in connection with these services was made a Member of the Order of the British Empire in January, 1918. In January, 1923, on the formation of the London Midland & Scottish Railway, he was appointed Assistant to Chief General Superintendent (Train Diagrams, Engine Workings, &c.)

Mr. C. R. Irving who, as announced in THE RAILWAY GAZETTE of May 11, has been appointed District Engineer, South Wales (Abergavenny), L.M.S.R., was educated at Silcoates, Wakefield, and entered the former L.N.W.R. service at Crewe in 1900 as a junior draughtsman in the Chief Permanent Way Engineer's office. Five years later he was transferred to the North Wales District at Bangor as a draughtsman, becoming Chief Draughtsman there in 1915. Mr. Irving was promoted to be Assistant Engineer, Bangor, in 1918 and, for ten months during 1927-28, was Acting District Engineer of that district. It was in November last that he was transferred from Assistant Engineer, Bangor, to District Engineer, Abergavenny.

Mr. F. K. Sah, Director of the Engineering Department of the Ministry of Railways of the Chinese Republic, left China on April 1 on a six months' visit to Europe.

We regret to note the death, on May 19, of Mr. E. P. Davies, whose retirement from the position of Claims and Salvage Agent, Goods Department, Paddington, G.W.R., was recorded in THE RAILWAY GAZETTE of March 24, 1933. His biography and portrait were then published. The funeral took place at Kemberton, Shropshire, on May 23. Representatives of the railway company and of many of the organisations with which he was connected were present. Mrs. E. P. Davies and son desire to express their heartfelt thanks to all friends for their messages and tokens of sympathy in their loss.

Road-Rail Containers

(*See also editorial notes on page* 922)

In THE RAILWAY GAZETTE of October 13, 1933, we published an abstract of a lecture on road-rail containers given to the Southern Railway (London) Lecture and Debating Society by Mr. S. Charlton of the Traffic Manager's office, Southern Railway. A table was reproduced showing the number of containers in service on each of the group companies for every year from 1927 to August, 1933. Comparing the increase in containers at work over the eight months between December, 1932, and August, 1933, with that for the seven months from August, 1933, to March 31, 1934, a notable speeding up of construction is revealed. Sixty-six containers were added to the L.N.E.R. stock between the first two dates, but the second and shorter period shows an increase of 164. The corresponding figures for the G.W.R. are 152 and 204; for the Southern Railway, 25 and 102. The last total, however, includes a certain number of ventilated meat containers actually under construction. The L.M.S. figures show no appreciable change. The accompanying table presents a complete analysis of the position of the four group companies with regard to containers at the end of March.

L.M.S.R. CONTAINER STOCK ON MARCH 31, 1934.

Closed Containers:	
A. 2½ tons carrying capacity	872
B. 4 tons carrying capacity	1,064
F. Insulated container of 4 tons carrying capacity	300
FX. Insulated container of 4 tons carrying capacity, with hanging facilities	150
K. Furniture containers with a carrying capacity of 3 tons	200
KX. Furniture containers with a carrying capacity of 4 tons	100
M. Ventilated containers of 4 tons carrying capacity for meat transport with hanging facilities	150
X. Container specially fitted to take 70 pedal cycles unpacked	49
Total	2,885
Open Containers:	
C. 3 tons carrying capacity	250
C. 4 tons carrying capacity	100
D. 4 tons carrying capacity	752
H. 2 tons carrying capacity	1,000
Total	2,102
Grand Total	4,987

Authority has been obtained for the construction of the following additional stock:—A, 100; B, 100; H, 250; K, 100; and X, 25.

L.N.E.R. CONTAINER STOCK ON MARCH 31, 1934.

Open, large, 4 tons	351
Covered, small, 2½ tons	551
Covered, large, 4 tons	600
Covered, large cycle, 3 tons	4
Brick, small, 2½ tons	50
Insulated, small, 2 tons	130
Insulated, large, 3 tons	60
Ventilated, large, 3 tons	35
Total	1,781

G.W.R. CONTAINER STOCK ON MARCH 31, 1934.

A. Small	260
B. BA, BS, and BX. Large	498
C. Small	115
D. Large	119
E. F and FX. Insulated	152
G. Grain	15
SI. Small, open	195
M. Ventilated	75
K. Furniture	75
Total	1,504

Additional containers are under construction as follow:—A, Small, covered, 50; BX, Large, covered, 19; FX, Insulated, 50; and K, Furniture, 50.

SOUTHERN RAILWAY CONTAINER STOCK ON MARCH 31, 1934.

* A. Small containers closed with a carrying capacity of 2½ tons	12
† B. Large closed containers with a carrying capacity of 4 tons ...	56
K. Large closed containers also having a carrying capacity of 4 tons ...	50
D. Large open containers	77
C. Small open containers	149
F,‡ & B. N. Insulated containers for meat transport with a carrying capacity of 3½ tons	402
M. Ventilated containers for meat transport constructed and in construction	20
Total	766

* Includes 3 insulated to a thickness of 6 in.

† Includes six ventilated and specially equipped for the conveyance of strawberry traffic.

‡ Including one specially equipped with dry ice bunkers, which can be recharged from the roof without having to resort to the opening of doors of containers.

RAILWAYS AND THE CATHEDRAL PILGRIMAGE.—On May 15 *The Times* published a letter from the Dean of Canterbury commending the proposal that a cathedral pilgrimage should be organised on a national scale to take place between July 1 and 14 for the purpose of raising funds for the relief of the unemployed in distressed and derelict areas. The idea is that a large number of people should be encouraged to make a pilgrimage to one of our great cathedrals during that period by whatever means they find most convenient, but that they shall first purchase a pilgrim's ticket costing 2s. 6d. for an adult (1s. for a child). Every penny of the money so raised will pass through the National Council of Social Service and the Personal Service League to swell the funds available for relief work in the distressed and derelict areas, except for a definite proportion which will be reserved by each co-operation cathedral authority for giving assistance to local efforts for the relief of unemployment. The organisers of this proposal desire to arrange for the pilgrims' tickets to be on sale throughout the country, and the railway companies have willingly agreed to co-operate by having the tickets on sale at a large number of their booking offices, and exhibiting posters relative to the scheme. Cheap day fares are already in operation to most of the cathedral cities, and these facilities will, of course, be available for pilgrims who desire to travel by rail.

Rail and Road Co-ordination in France

Drastic measures agreed for the Rouen-Havre-Dieppe region

(From our own correspondent)

With characteristic energy and organising ability, M. Raoul Dautry, General Manager of the State Railways, is leading the way in the co-ordination of railway and road transport in France in accordance with the recent Governmental decrees, which formed the subject of an article on page 731 of THE RAILWAY GAZETTE of April 27. These decrees came into force on April 20, and within less than a month, the first regional agreement covering the Rouen-Havre-Dieppe district of Upper Normandy has been concluded. The result is mainly due to M. Dautry's untiring efforts to obtain the support of all the transport interests concerned. The details were threshed out in a series of conferences at Rouen. The area selected for this experiment draws the bulk of its traffic from the three ports just mentioned and comprises the Department of the Seine-Inférieure and parts of adjoining Departments. Arrangements have been made for an equitable distribution of both passenger and goods traffic between the railway and road interests.

Closing of Branch Lines and Smaller Main Line Stations

Radical changes will be made in the passenger traffic to enable the railway and motor-car services to reduce the superfluous equipment now employed in competition. The State Railways in this area undertake to close nearly all branch lines to passenger train traffic, thus virtually restricting its passenger services to the main lines. Even on the main lines, most of the small stations will be closed to passengers and the trains will run as "semi-direct" or expresses stopping only at the larger stations. Passengers for intermediate points must change over to the motor-car services, which will serve all localities.

In the area covered by the new agreement there are four main lines with double tracks, having a total length of about 250 miles. These lines run from Mantes to Havre, Rouen to Dieppe, Rouen to Serquigny and Pontoise to Dieppe. Connecting with these are more than 300 miles of branch lines, mostly single track, which will be closed to passenger traffic, namely: Etretat to Les Ifs, Fécamp to Dieppe, Motteville to Saint-Valery-en-Caux, Motteville to Clères and Monterolier-Buchy, Bréauté to Lillebonne, Barentin to Caudebec, Dieppe to Eu, Pont-de-l'Arche to Gisors, Charleval to Serqueux, Rouen-Orléans to Elbeuf and Louviers, Oissel to Elbeuf-Saint-Aubin, Quetteville to Pont-Audemer and Glos-Montfort to Evreux, Saint-Pierre-du-Vauvray to Louviers and Saint-Pierre-du-Vauvray to Les Andelys.

All these branch lines are now operated at a loss to the system, and the passenger services are to be taken over by the road transport concerns. The latter are sufficiently well equipped for the purpose and will need no new cars, and can even organise supplementary services for localities hitherto without rail or road motor facilities.

Bus Services for Smaller Stations

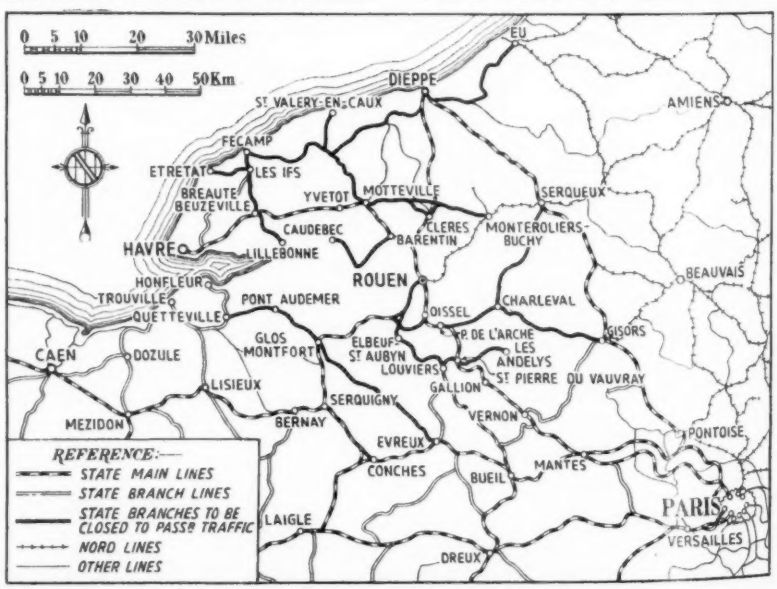
Improvements in the main line traffic, particularly the speeding-up of trains, form part of the State Railways' plan. By giving improved travelling facilities, it is hoped to win general public approval of the new agreements. On the other hand, motor-cars running on roads parallel to the railway lines, will provide services for the smaller stations no longer to be served by passenger trains and will also serve adjoining localities. On the line from Mantes to Havre, for example, only Mantes, Vernon, Gaillon, Pont-de-l'Arche, Rouen, Barentin, Yvetot, Bréauté and Havre will be served by passenger trains, all other stations being closed to passengers. Fast services are to replace the present slow trains stopping at all stations.

Adoption of the plan for the redistribution of passenger and goods services between the rail and road transport systems in Upper Normandy is estimated to effect an annual saving of 20,000,000 francs (£250,000 at 80 fr. to the £) to the State Railways. To make the new agreement effective, however, similar plans are required in adjoining regions. In fact, it is intended that the scheme should form a model of co-ordination to be extended rapidly over the whole of France. In an article dealing with the subject, the *Petit Parisien* says that the Upper Normandy scheme, due to the vigorous action of M. Dautry, inspired the decisions of M. Doumergue, the Premier, and M. Flandin, Minister of Public Works, as embodied in the recent rail and road co-ordination decrees.

Traffic conditions in connection with the ports of the Seine-Inférieure are especially complex and the success of the scheme there would go far to ensure the adoption of similar agreements applicable to the entire territory of the State Railways and the extension of such co-ordination to all parts of the country. Road passenger competition is especially acute in this region, there being 36 services in each direction daily between Rouen and Havre, 37 between Havre and Fécamp, 32 between Rouen and Elbeuf.

Goods Traffic Co-ordination

In addition, the competition of goods traffic by lorries and vans is particularly keen, the lorries taking much of the long-distance goods transport from the railways. Motor vans and trucks run from Havre or Rouen to Paris, Lille, Lyons and Strasbourg, taking the most profitable traffic from the railways and leaving the less remunerative heavy goods in bulk. Some 200 lorries are thus in daily competition with the railways. Further, local contractors pick up occasional five to ten-ton loads for distant destinations. Under the new agreement between the transport contractors and the railways, all the carriage of goods in bulk from Havre, Rouen and other big centres to Paris and beyond will go to the State Railways in future. Short distance transport will be reserved for the road hauliers. Their zone will be limited to



Sketch map of the branch lines around Rouen to be abandoned

* The connection from Oissel to the Rouen-Glos-Montfort line will, of course, remain open for the through Dieppe-Bordeaux expresses

a radius of about 20 miles from the principal towns. As this measure will not allow of the complete utilisation of the expensive motor vans now in service, these will be authorised to continue long-distance transport until the amortisation of the vehicles is completed.

Lorries in future are to serve largely as feeders to the railway lines around specified centres. On the line from Fécamp to Dieppe, for instance, goods will be delivered by motor trucks to Fécamp for conveyance by rail to Saint-Ouen and Colleville. Yvetot will serve as the centre for rail distribution to Valmont, Orville, Grainville, Cany, Saint Vaast-Bosville, Herberville and Fontaine-le-Dun. Dieppe will be the centre for Luneray, Ouville, Offranville and Petit-Affreville. Organisation of goods circuits around these centres will be gradual. It is intended to provide facilities for many localities far from the railway lines, which have been hitherto dependent only on local means of transport.

Co-operation in the Electrical Industry

Further railway electrification advocated at the Beama dinner

Co-operation in industry was the keynote of the speeches at the annual dinner of the British Electrical and Allied Manufacturers' Association on Thursday of last week. The Earl of Derby, President of the association, presided over a distinguished gathering of more than 700 persons representing all branches of the electrical manufacturing industry, present and potential large consumers, and government officials.

In proposing the toast of "Co-operation in Industry," Mr. M. J. Railing, Chairman of the association, and Joint Managing Director of the General Electric Co. Ltd., said first that this modern slogan was to him no empty phrase. It represented an ideal, and one to which he had given considerable thought during the past few years. The organisation of industry to meet modern conditions was a subject which was now receiving the closest attention of statesmen, bankers, and industrialists, and we had reached a point at which it might be profitable to review briefly past stages of progress in the manufacturing industries of this country and particularly those linked with the great electrical industry. There were three principal periods. The first was the pre-war period, when in most of our important industries, the factor of co-operation or team work was very weak; when those who put it into practice were, in fact, often regarded with suspicion. Individualism in industry was the prevailing note.

The war, which marked the second stage, stimulated our dormant enterprise and aroused our inherent energy Our scientists, inventors and engineers, made efforts which before would have been regarded as almost miraculous, and among the many lessons that the war taught us, the lesson that the pooling of interests and of resources made for strength and efficiency was not the least valuable. We emerged from the war period with a far stronger and clearer idea of our own capabilities; a definite realisation of the value of co-operation, plus individual initiative. We had shed, as a manufacturing nation, many useless prejudices and old-fashioned notions and so had come to the third or post-war period.

During the past fifteen years the electrical industry of this country had not followed the course pursued in other countries such as America and Germany. It had not sacrificed its invaluable asset of individual effort; nor had it combined into a few large units which formed almost a monopoly. It had, however, built up a system of co-operation which, he firmly believed, had proved itself by standing the test of difficult times more successfully than had any organisation in other industrial lands. It had built up a reputation for its products second to none, and, through that high repute, had succeeded in regaining once more a leading position in the export requirements of the world, small though they unfortunately may be at the present time.

As a practical example of co-operation as affecting the domestic market he instanced railway electrification. The manufacturers of electrical apparatus indicated some time ago that they were prepared to act in co-operation, pooling their resources in designs, patents, production, and other matters, if the railway companies, also acting collectively, would state in some definite form their needs on the question of electrical equipment. Thus, without the extravagant expenditure of an enormous amount of competitive energy, without ill-advised and unnecessary duplication, we would arrive at a reasonable interchangeability, at standardisation with its useful economies, and great saving in cost.

The toast was responded to by Dr. E. L. Burgin, M.P., Parliamentary Secretary to the Board of Trade, in a humorous speech, which made clever play of electrical terminology. He said the Board of Trade was not, as some thought, an organisation in restraint of trade, but a Government Department whose duty it was not so much to regulate as to foster trade. "Let there be the frankest approach, as on our side there is the greatest accessibility," he said. "We are prepared to extend a right hand of practical administrative friendship to you." In 1621 the Board of Trade was directed to appoint a committee to give reasons for the decline in trade and the absence of money. After nine months it made a report, which stated: "We have been struck by the fact that it is easier to state the reasons than to formulate remedies." How many committees both before and since had found the same truths! There was more than one industry of which that might be said with perfect truth to-day.

The toast of "Our Guests" was entrusted to Lord Weir of Eastwood, who said that in its comparatively short lifetime the Government had brought about in our social, industrial, and financial activities far-reaching changes of a most revolutionary character. It had made these changes calmly and deliberately, after studied analysis and serious consideration, and with the best interests of the people as a whole steadily before them. Taken broadly, the methods used and the results obtained were regarded by the rest of the world with the most pro found respect, with no little admiration, and even in some quarters with a degree of envy. British industry, commerce, and agriculture were making strenuous and far-reaching efforts to bring back employment and prosperity to the country, and the Government was applying itself to the same tremendous task. For the grid system he claimed "a small measure of paternal responsibility" and said that it was the first and by far the greatest example of complete planning of a national utility service in any great country in the world. Referring to the development of electric traction, Lord Weir said: "I have been a steam engineer all my life, and I willingly agree with Sir Josiah Stamp that steam traction can still be improved and further perfected, but I do very strongly suggest that the same consideration devoted to steam to-day, if devoted to electricity, would yield better results to the British railway companies." This country, he added, was particularly suitable for a very wide adoption of electric traction, and in this field there was ample scope for imagination and new enterprise, bringing with it valuable national repercussions. Sir Herbert Walker had taken a bold course in order to provide better service, and there was no evidence that the Southern Railway regretted the expenditure.

In response, Lieut.-Colonel D. J. Colville, Parliamentary Secretary to the Department of Overseas Trade, observed that last year the Empire took 56 per cent. of our electrical exports. With regard to the foreign market, the Warsaw electrification contract provided an excellent example of successful co-operation between a government department and industry. In the electrical industry lay the welfare of tens of thousands of British people, and the appropriate government departments were anxious to do all in their power to co-operate wherever possible in furthering its expansion.

NOTES AND NEWS

U.S.A. Federal Co-ordinator.—President Roosevelt issued a proclamation on May 2 extending for a year from June 16 next the life of Title I of the Emergency Transportation Act, 1933, providing for the office of the Federal Co-ordinator of Transportation. The Act provided that this office should cease at the end of one year after its effective date unless extended by a proclamation of the President for one year or any part thereof.

German State Railway Returns.—For the first quarter of the present year the receipts of the German State Railway were 743,657,000 R.M., the working expenses 752,010,000 R.M., and the total expenditure 799,884,000 R.M. The receipts were 16 per cent. higher than those of the corresponding period of 1933, but the working expenditure rose by 12·5 per cent., and the total expenditure by 12·0 per cent. The annual report for 1933 is dealt with in an editorial article on page 925.

London Transport Bill.—Evidence by Mr. Frank Pick, Vice-Chairman of The London Transport Board, was continued on May 17 in support of the proposals in the Bill for the establishment of trolleybus routes before the Select Committee of the House of Commons, presided over by Mr. Annesley Somerville. Cross-examination was mainly directed to the proposal to run trolleybuses along Tottenham Court Road, using Bedford Square as a turning place. The Committee adjourned until Tuesday, May 29.

The Week's Road Accidents.—The Secretary to the Ministry of Transport has issued the following return, for the week ended May 12, of persons killed or injured in road accidents; the figures for the preceding week are shown in parentheses:—

	Killed in accidents reported during the week	Reported during the week as having died as the result of accidents occurring in previous weeks	Injured in accidents reported during the week
	No.	No.	No.
England ...	79 (82)	33 (26)	4,056 (3,938)
Wales ...	6 (6)	1 (1)	177 (176)
Scotland ...	8 (6)	1 (3)	332 (397)
Great Britain	93 (94)	35 (30)	4,565 (4,511)

The total fatalities of the week as the result of road accidents were therefore 128, as compared with 124 for the preceding week.

Railway Accidents in the U.S.A. in 1933.—A total of 5,019 persons were killed on the railroads of the United States during 1933, and 27,494 were injured. This compares with 4,747 and 29,219 respectively in 1932, and 5,099 and 35,656 in 1931. The increase in killed is accounted for almost entirely by trespassers on the line. Passengers killed in train accidents in 1933 numbered 23, compared with one in 1932 and four in 1931. The increase in this item is accounted for by the accident due to a bridge collapse at Harjis, in which eight were killed, and the collision at Binghamton, in which 14 were killed.

Average Age of Canadian National Locomotives.—A census of railway engines of the Canadian National Railways shows that the combined ages of the 3,031 locomotives in service give a total of 58,403 years. The average age is 19 years, and the oldest 52 years.

French Railway Stock.—At the beginning of the present year the total stock of the seven large French railways, which between them carried last year about 700 million passengers and 222 million tons of goods over a route mileage of 26,100, consisted of 19,350 steam locomotives, 27 steam railcars, 608 electric locomotives, 390 electric motor coaches, 142 internal-combustion loco-tractors, 33 internal-combustion railcars, 55,688 carriages and baggage cars, and 519,270 wagons.

Railway Students' Association at Farringdon Street.—A party of 35 members of the Railway Students' Association, University of London, visited Farringdon Street Goods Depot, L.N.E.R., on May 17. The arrangements for the visit were made by Mr. Percy Syder, London City Manager, L.N.E.R., and included a conducted tour of the warehouse, loading banks, &c. Before starting their inspection of the depot, the members listened to a short and informative lecture from Mr. Steers, Chief Clerk to the Goods Superintendent at Farringdon Street. The party was given a demonstration of how the mechanical horse has displaced the horse-drawn vehicle and inspected the Ajax trucks used for barrowing to and from the rail wagons. The mechanisation of Farringdon Street goods depot was fully described and illustrated in the Road Transport Section of our issue of March 16 last.

Southern Railway Developments.—Reconstruction of Hayes station has begun in order to bring this branch terminus up to modern traffic requirements. Hayes and West Wickham, on what was formerly one of the most countrified branch railways in the London area, are now the centres of most active housing development as a result of the introduction of electric traction and close interval services. Elmers End station, at the junction of this branch with the Mid Kent line, was recently overhauled, and the platforms at Woodside, the next station towards Addiscombe, are at present being raised to standard height. A new locomotive depot is in course of construction just north of Norwood Junction between the down Crystal Palace flyover and the down London Bridge local line. This will replace the old West Croydon locomotive shed. At Charing Cross a new restaurant entrance is being made; the stairs from Villiers Street now enter the station further south, and a new artistic metal barrier has been erected at the end of Nos. 1 and 2 platforms, No. 1 road buffer-stops having been set forward to make room.

Welding of Worn Crossings on the S.A.R.—On the Natal system of the South African Railways the welding of worn crossings is proceeding satisfactorily, and Mr. J. M. Greathead, System Engineer, Durban, who controls this welding, has reported that up till the end of March about 1,500 crossings had been so repaired. As a result of this method the number of new points and crossings ordered per annum has been reduced from 140 sets to 25 sets. There had been a few failures but none of these was of any great moment.

British Standard Angles and Tee Bars.—A revised list of British Standard equal angles, unequal angles and tee bars has now been published by the British Standards Institution (B.S. Specification No. 4A—1934). Copies may be obtained from the British Standards Institution, 28, Victoria Street, S.W. The price is 2s. 2d. post free. Revised lists of beams and channels were embodied in B.S.S. No. 4, which appeared in 1932. Bulb angles and bulb plates are still under consideration.

Swedish Railway Works.—The Budget Commission of the Swedish Riksdag has recommended the acceptance of the Government's proposal to allow the Swedish State Railways the sum of 15,000,000 kr. for new electrification work, in addition to a further allowance of 13,400,000 kr. for the continuation of conversion work on the Stockholm-Krylbo-Aange and Krylbo-Orebro lines. Another 15,480,000 kr. is budgeted for public works on the State Railways and in connection with the telegraphic and water-power systems.

The Festiniog Railway.—It was reported last week to the Deudraeth Rural Council that Mr. Evan R. Davies, Managing Director of the Festiniog Railway, had offered to take over and run the Welsh Highland Railway for a year without rent, subject to an option being granted to take a lease of the railway for a minimum period of 21 years, renewable at the option of the lessees for further periods of 21 years, on terms that 10 per cent. of the gross receipts are reserved and paid to the owners. The Festiniog Railway would take over the railway as it stands with all stock and premises. We recorded in our issue of March 30 last that a conference of representatives of local authorities which had invested money in the Welsh Highland Railway had considered the question of closing down the railway. The debenture holders agreed with the Portmadoc Council that, if the railway were closed, sections near Portmadoc

and elsewhere should be kept intact in readiness for hoped-for local quarry developments. The conference appointed a deputation to confer with the Managing Director of the Festiniog Railway, and also decided to ask the L.M.S.R. whether it would consider taking over the Welsh Highland Railway. The proposal of Mr. Davies is now being considered by the joint committee of the investigating authorities.

Spanish Railway Accident.—A head-on collision occurred between two trains near the village of San Baudilio de Lobregat, 15 miles from Barcelona, on May 21. It appears that an up train to Barcelona started off on the single line before the arrival of a down train at San Baudilio. The two met about half a mile down the line.

A Miniature Railway in Russia.—The shortage of skilled railway labour is one of the most serious aspects of the transport problem in Russia, and has resulted in the institution of universities and correspondence courses for giving instruction in railway subjects. With the idea partly of providing amusement and partly of stimulating enthusiasm for railways among children and inducing them later to train for the service, the construction of a miniature railway has been begun in the Orojonikidze Park at Tiflis. The track will be about a mile in length and the engines will be oil-driven.

New Railway Link in Morocco.—On Thursday, May 17, the Sultan of Morocco officially opened the standard-gauge railway between Fez and Oudjda. Previous rail connection between these points has been by a narrow-gauge railway, and the new link standard-gauge is of great importance in that it will allow through running between Tangiers, Casablanca, and intermediate points on the western coast of Morocco to the Algerian Railways from Oudjda to Algiers and Oran. The Tangiers-Fez Railway was opened throughout in July, 1927. At Petit Jean it connects with the Rabat-Casablanca-Marrakech line of the Chemins de fer du Maroc, on which section electric working throughout was inaugurated on January 15 of this year. Electrification between Petit Jean and Fez will be completed shortly.

Railway Air Services Limited.—The joint undertaking of the four main-line railway companies and Imperial Airways Limited has set up a special commercial committee to study all reasonable proposals put forward for the initiation of air services, and to draw up a report for submission to the board of directors. Each of the railways and Imperial Airways has nominated one member of the committee, all of whom are executives of the various companies. The members are: Mr. K. W. C. Grand (G.W.R.); Mr. D. H. Handover (Imperial Airways); Mr. W. P. Bradbury (L.M.S.R.); Mr. E. G. Marsden (L.N.E.R.); and Mr. J. B. Elliot (Southern Railway). It will be the duty of each member to advise the director of Railway Air Services nominated by his company with the report of the committee and all relevant details. It is believed that the institution of this committee will make for greater expedition, efficiency, and economy in the provision of new services.

British Railway Sea-ways.—In the June issue of *Coming Events*—the organ of the Travel and Industrial Development Association of Great Britain and Ireland—it is pointed out that the British railways operate no fewer than 27 cross-Channel services. "One can travel from the Continent to Great Britain by 16 different railway-owned routes; reach Ireland by nine; and have the choice of two routes to the Channel Islands. These services are the 'ceaseless services' . . . and are vital links in the chain of European travel."

New Post Office Van for Belfast-Coleraine Service.—A new post office sorting van has been built by the L.M.S.R. (Northern Counties Committee) and is now in service between Belfast and Coleraine. It is constructed on the lines of the latest N.C.C. coaching stock, so as to harmonise with the general appearance of the trains in which it is marshalled. The new vehicle, which is numbered 430, replaces the existing van, now out of date. The leading dimensions are 43 ft. 10½ in. over headstocks. and 9 ft. 6 in. wide over mouldings. It is somewhat larger than the vehicle replaced and affords ample room for carrying out the postal work. As may be seen from the illustration, the sorting sets are ranged along one side of the van. They comprise three letter sets of 48 boxes each, one newspaper set of 43 boxes with zinc-lined well in front, and provision underneath for direct sorting. The registered letter desk has 30 boxes, is partitioned off from the main desk, and has a roller shutter so that it may be locked up when not required. Underneath these sets the usual swivel seats have been provided. Opposite the sorting sets are large windows, giving ample light for sorting work, and below these windows is the bag rail. In one corner of the van there is a nest of six drawers for stationery and writing materials. The staff accommodation and appointments are up to date, and include a three-compartment wardrobe; lavatory with hot-and-cold wash hand basin; electric urn for making tea; and rest seat and table. Full fire protection equipment is fitted, and the vehicle is electrically-lit throughout. We are indebted for the foregoing particulars to Major Malcolm Speir, Manager of the Northern Counties Committee.

Week-End Cruises.—The attractions of the week-end cruise, which, after all, is the most practical of sea holidays for those without unlimited time on their hands, are alluringly presented in a new illustrated folder published by the L.N.E.R. The ss. *Vienna* has again been selected as the cruise ship, and every week-end from June 29 to September 7 she will sail from Harwich for the Dutch and Belgian coasts. The itineraries have this year been extended to include the Hague and Rotterdam in addition to the ports called at during 1933. A special train conveys passengers from The Hook of Holland to the Hague without extra charge. The organisers have shown great ingenuity in presenting all the most popular features of the cruising holiday within the short time at their disposal. Deck games and dancing on board, combined with shore excursions that cater both for lovers of scenery and the picturesque and for those who prefer to visit the famous

New post office sorting van, L.M.S.R. (N.C.C.) for Belfast—Coleraine service

casinos of the Belgian coast or to play golf on her celebrated links, assure a successful holiday for every passenger. A special bank holiday cruise extending to Tuesday instead of Monday morning, and including the attraction of a carnival dance, has been arranged for the week-end commencing August 3. The folder is illustrated in photogravure and includes time-tables and lists of inclusive fares from London and the provinces.

Gretna Troop Train Accident Commemorated.—In commemoration of the Gretna railway accident, which occurred on May 22, 1915, when over 200 non-commissioned officers and men of the 7th Battalion the Royal Scots (Territorial Army) were killed while on their way to the front, a service was held in South Leith Church last Sunday morning. A short service was afterwards held at the graves in Rosebank Cemetery.

Closing the Clogher Valley Railway.—Residents in Tyrone and Fermanagh are seriously concerned at proposals for the closing down of the Clogher Valley Railway, which serves a large portion of both counties. At Tyrone County Council recently, a resolution was passed strongly appealing to the Government not to permit this step to be taken. The resolution further stated that the railway was in excellent running condition, and quite capable of giving a most satisfactory service, while protected from unfair competition it could handle all the traffic available in the Clogher Valley, and probably exist without a heavy subsidy from Government sources. The increase in the livestock traffic in the past seven years abundantly proved the need for the railway. The subject was also considered by the Clogher Rural Council, and it was resolved to petition the Ministry to continue the railway, as its closing down would mean a great loss to employees, general public, and fairs.

Electricity Supply and London Transport.—The London and Home Counties Joint Electricity Authority, at a meeting held on Wednesday at its offices in Millbank, Westminster, approved the terms of a new agreement for the supply of electricity to the London Passenger Transport Board. The Local Distribution Committee reported that the agreement for the supply of electricity by the authority to the board provided that the terms should be subject to revision from June 30, 1934. In consequence of the proposal of the board to substitute trolleybuses for tramways, and of the increased supply which was therefore required, the whole position had been discussed with the engineers of the board. As a result of those negotiations, it was proposed that the authority should furnish a supply to the board at the Sutton tramway depot at approved prices, together with accommodation at the new Wallington sub-station of the authority for conversion plant to be provided by the Board. The cost to the authority of extending the supply to the Sutton depot was estimated at £1,187, and the additional cost of providing sub-station accommodation at Wallington at £180.

Swedish Electrification.—Reuter's Trade Service reports from Stockholm that the Riksdag has agreed to the Government's proposal for the electrification of the following State Railway lines:—1, Laxaa, on the Stockholm-Gothenburg line, to Charlottenberg, on the Norwegian frontier, 203 km.; 2, Södertaelje, on the Stockholm-Malmö and Stockholm-Gothenburg lines, to Eskilstuna, 82 km., with junction lines to Straengnaes, 15 km., and Mariefred, 3 km.; and 3, Upsala-Gaefle, 114 km. The total cost is estimated at Kr. 25,500,000.

Midland "Red" Goods Transport.—The Birmingham & Midland Motor Omnibus Co. Ltd., which is associated with the L.M.S.R. and G.W.R., has sold to Pickfords Limited the Midland "Red" Commercial Motor Services, the formal transfer of which will be made on May 31. The purchase consists of all the business previously carried on by the Birmingham & Midland Company by means of commercial goods vehicles, but does not include the carriage of parcels, passengers' luggage, &c., on passenger vehicles. There will be the closest co-ordination between the commercial services taken over by Pickfords and the parcels-carrying business which will be continued on the omnibus company's passenger vehicles. The advantage of this will be felt in places covered only by one company's services. Pickfords will take over the premises at present occupied by the Midland "Red" Commercial Motor Services in Seymour Street, Birmingham, and certain members of the staff will also be transferred to Pickfords.

Irish Railwaymen's Wages.—At a meeting in London on Friday of last week, the executive committees of the three railway trade unions (the National Union of Railwaymen, the Associated Society of Locomotive Engineers and Firemen, and the Railway Clerks' Association) considered the outcome of the wages negotiations in Ireland between representatives of the Irish railways and of the unions. At the close it was announced that an agreement had been signed on behalf of the three unions and representatives of the companies with regard to the Great Northern Railway of Ireland, the L.M.S.R. (Northern Counties Committee), the Sligo, Leitrim & Northern Counties Railway, the County Donegal Railways Joint Committee, and the Dundalk, Newry & Greenore Railway. This agreement provides for a deduction from May 1 of 10 per cent. from earnings based on the rates of pay in operation before May, 1931. At present wages are 7½ per cent. below those rates. Where, however, the earnings are 45s. a week or less on group 1 railways, or 36s. a week or less on group 3 railways, the deduction is to be 7½ per cent. The agreement applies to the conciliation grades, including drivers, firemen and clerks, stationmasters, goods agents, male and female clerks and supervisors; but it excludes road-motor passenger staff. The agreement will operate until May 1, 1935, and will be subject to review after March 30 next. With regard to the Great Southern Railways, it was announced that the claims of the company had been fully reviewed, and that the joint executives had decided that they could not agree to any increase of the 7½ per cent. deduction now in force. Arrangements were, however, being made for a further meeting with the General Managers of the company.

British Oxygen Jubilee.—In 1936 the British Oxygen Company will celebrate its jubilee.

German Railway Accident.—A shunting engine collided with the flank of an incoming passenger train at Pforzheim on May 17. The sides of three coaches were ripped off and others damaged. Seven passengers were killed and many injured.

Egyptian State Railway Receipts.—The approximate total receipts of the Egyptian State Railways from May 1, 1933, to April 30, 1934, amount to £E.5,026,000, which is an increase of £E.319,000 or 7 per cent. compared with the receipts for the previous year. The total receipts quoted above are sub-divided as under:—Coaching, £E.2,067,000; Goods, £E.2,854,000; Miscellaneous receipts, £E.105,000. The total number of passengers carried during the year was 34,529,000, which is an increase of 2,308,000 or 7 per cent. compared with the number carried during the previous year.

London's Cruising Exodus.—So extensive are the summer cruising plans of the principal shipping lines sailing from Tilbury Docks and Liverpool that from London alone the L.M.S.R. has already scheduled 185 special boat trains to these places this season. Between now and the end of the cruising season in September, there will be 105 boat trains from St. Pancras to Tilbury, and 80 from Euston to Liverpool (Riverside), while it is expected that many additional trains will be run at short notice. The busiest day of the season at Tilbury promises to be Saturday, July 14, for which date eight trains have already been scheduled from St. Pancras to Tilbury for outward sailings of the liners *Atlantis*, *Arandora Star*, *Empress of Australia*, *Esperance Bay*, *Nevasa*, *Staffordshire*, *Samaria*, and *Viceroy of India*.

Forthcoming Meetings

May 25 (*Fri.*).—**Société Nationale des Chemins de fer Belges** (Ordinary General), Palais des Académies, Rue Ducale, 1, Brussels at 3 p.m.

May 28 (*Mon.*). **Temiscouata Railway Bondholders' Committee, Limited,** (Provisional Certificate Holders), Winchester House, Old Broad Street, E.C.2, at 12.15 p.m.

OFFICIAL NOTICES

"IMPROVEMENTS IN AND RELATING TO ELECTRICAL SIGNALLING SYSTEMS FOR RAILWAYS."

THE Proprietors of British Patent No. 348,512, which has solved the problem of the running of trains in foggy weather and should be of interest in this country where the fog is an obstacle to the trains running to schedule, desire to arrange for the commercial working of this Patent by sale outright or by licences granted on participating and reasonable terms.

Particulars obtainable from TECHNICAL RECORDS LIMITED, 59-60, Lincoln's Inn Fields, London, W.C.2.

PATENTS for Inventions, Trade Marks, Advice, Handbook, and consultations free. King's Patent Agency, Ltd. (B. T. King, C.I.M.E., Registered Patent Agent, G.B., U.S., and Canada), 146a, Queen Victoria Street, London, E.C.4. 49 years' references. 'Phone City 6161.

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

Buenos Ayres Western Railway Limited

THE Registers of the Company's 4 per cent. and 5 per cent. Debenture Stocks will be closed from Friday the 1st June to Thursday the 14th June, both days inclusive, for the purpose of preparing the half-yearly interest warrants.

By Order of the Board.
ROBERT GRAHAM,
Secretary.

Offices of the Company,
River Plate House,
Finsbury Circus, E.C.2.
24th May, 1934.

Railway Wage Negotiations

The question of railway wages has again come into the forefront this week as a result of the meeting which was held on Thursday (yesterday) between representatives of the railway companies and of the three principal railwaymen's trade unions in connection with the applications for the termination of the existing cuts in salaries and wages and of the reduced rates of payment for overtime, etc.

These cuts and modified conditions of service which have been in operation for the past three years, having been introduced by decision of the National Wages Board from the beginning of April, 1931, are as under:—

SALARIES AND WAGES.

Conciliation Grades.—Deduction of 2½ per cent. from earnings, with a further deduction of 2½ per cent. in respect of all earnings in excess of 40s. a week: Provided that the earnings of men whose base rates are under 41s. a week shall not be reduced below their base rate and that in no case shall the deduction exceed 6s. a week.

Clerical and Supervisory Staff.—Deduction of 2½ per cent. from earnings, with a further deduction of 2½ per cent. in respect of earnings in excess of £100 per annum, provided that the total deduction shall not exceed £15 per annum.

CONDITIONS OF SERVICE.

Conciliation Grades.—Overtime: the rates of time-and-an-eighth substituted for time-and-a-quarter. Night duty: the same as for overtime. Sunday duty: the rate of time-and-a-third substituted for time-and-a-half, and time-and-two-thirds where double time was previously payable. Hours of work: spread-over up to twelve hours a day permissible for all grades (except drivers, firemen, guards, and signalmen).

Under the decision of 1931, the deductions from earnings and modifications of conditions were in the first instance operative for a period of twelve months, subject to continuance thereafter until altered by agreement between the parties or a decision of the Central Wages Board or, on appeal, of the National Board.

In the autumn of 1932 the railway companies put forward a proposal that the deduction should be increased to ten per cent. provided that minimum earnings for a full week should not fall below 30s. It was on this occasion that five separate findings were issued by the various groups of members of the National Wages Board (January, 1933) and the Chairman gave a decision altering the basis of the cuts in a way which would have given the companies additional relief which they estimated would represent less than £1,000,000 per annum, as compared with an estimated yield of £4,600,000 on the basis of their claim. In spite of this the companies intimated that they were prepared to adopt the Chairman's finding, but the trade unions would not agree. At a later date the companies gave notice to determine the reference to the Central Wages Board, or, on appeal, the National Wages Board, of all questions relating to rates of pay, hours of duty, or other conditions of service of employees who, under Section 62 of the Railways Act, 1921, were under the jurisdiction of those bodies. This notice expired on March 3, 1934, and no agreement has yet been reached as to the provision of alternative machinery, the unions having declined to accept the proposals put forward by the companies in February last, which included the setting up of a railway staff national tribunal consisting of three members, one to be selected by the trade unions, one by the companies and a chairman to be appointed by agreement.

The present applications by the trade unions for the discontinuance of the percentage deductions from salaries and wages and for the restoration of the conditions of service which operated prior to the decision of the National Wages Board in March, 1931, were discussed at a meeting between representatives of the companies and the trade unions on April 16 when the latter urged that their claims were justified on the grounds of increased prosperity and improved prospects of the railway industry. The companies' representatives, whilst not being hopeful of being in a position to make the desired concessions, undertook to examine the position and give a reply in due course.

At a meeting in London yesterday (Thursday), representatives of the four group railway companies discussed with representatives of the National Union of Railwaymen, the Railway Clerks' Association, and the Associated Society of Locomotive Engineers and Firemen, claims made for the discontinuance of the percentage deductions, &c., operating under National Wages Board Decision No. 119, March 5, 1931, and certain other claims. After a full exchange of views, the representatives agreed to report to their principals.

NEW EXPRESS AIR LINER.—Shortly before its departure on a thousand-mile trip round Britain on Empire Air Day, we were privileged to inspect the new de Havilland express air liner of the Diana class, originally built to fulfil the conditions laid down by the Australian Commonwealth Government for the extension of the Empire Airway from Singapore to Australia. By this route, before the end of the year, the journey from England to Australia will be made in 14 days. Contracts for similar machines have also been placed by Railway Air Services Limited, and by Imperial Airways Limited for its Continental services. The Diana is claimed to be the fastest four-engined commercial aircraft in the world. It cruises at 145 miles per hour and has a top speed of 175 miles per hour. The example which we inspected at Hatfield aerodrome has seats for eight passengers and a crew of two, but the seating, which consists of comfortable arm-chairs with collapsible table attached, can be varied in the different models. The saloon is attractively finished, the walls being panelled in polished walnut, and the ventilation arrangements are especially efficient. It is driven by four Gipsy-six engines of 200 h.p. each. This aircraft possesses the enormous safety margin of being able to maintain a height of 15,300 ft. in a fully loaded condition with any one of its engines out of action. Even with any two of its engines stopped it can still fly at a height of 3,600 ft. with a full load on board. Thus the possibility of forced landing due to engine failure is practically eliminated. The Marconi long and short wave wireless installation permits communication to be maintained up to a range of 2,000 miles.

CONTRACTS AND TENDERS

D. Wickham & Co. Ltd. has received an order from the Central Argentine Railway for 25 light-weight inspection motor trolleys and a quantity of spare parts.

Alfred Herbert (India) Limited has received an order from the Indian Stores Department for three 10-kW. generating sets at a total price of Rs. 21,355 f.o.r. Calcutta.

Geo. Richards & Co. Ltd. has received an order from the Buenos Ayres Great Southern Railway for one No. 2 size Pearn - Richards universal surfacing, boring, milling, drilling, and tapping machine.

Beynon & Co. has been awarded the contract by the Egyptian State Railways for the supply of 297,000 metric tons of coal. Beynons quoted 23s. 5½d. c.i.f. and 17s. 7½d. f.o.b. for 270,000 tons.

The Equipment & Engineering Co. Ltd. has received an order from the Central Argentine Railway for one E.L.1 portable electric welding set similar to a number already supplied by this firm to the same railway.

John Baker & Bessemer Limited has received an order from the Bhavnagar State Railway for 18 engine and tender tyres, 96 carriage and wagon tyres, and 30 carriage and wagon axles, to the inspection of Messrs. Robert White & Partners, consulting engineers.

The Derbyshire Wagon Co. Ltd. (through the Standard Railway Wagon & Carriage Company) and R. & Y. Pickering & Co. Ltd. have received orders for a total of 100 12-ton coal wagons, in equal batches of 50 each, from John Hudson & Co. Ltd.

P. & W. MacLellan Limited has received a contract from the Egyptian State Railways Administration for the supply of mild-steel flat bars required for one year at an approximate cost of £3,073 18s. 7d. delivered f.o.b. British ports or Antwerp. (Ref. No. E.S.R. 301G3/5.)

Another Garratt

Beyer, Peacock & Co. Ltd. has received an order from the British (Guest Keen Baldwins) Iron & Steel Co. Ltd. for one Beyer-Garratt locomotive of the 0-4-0 + 0-4-0 type for its Cardiff steel works. This Beyer-Garratt engine will have a tractive effort of over 30,000 lb. on a maximum axleload of only 16 tons and a rigid wheelbase of only 5 ft. 6 in.

The Indian Stores Department has placed orders for vacuum brake equipment, running contract No. M-4155, for East Indian, Eastern Bengal, Great Indian Peninsula, North Western, and Burma Railways divided among the following firms :—G. D. Peters (India) Limited, Saxby & Farmer (India) Limited, Heatly & Gresham Limited, United Engineering Corporation, Westinghouse Brake & Saxby Signal Co. Ltd. through Saxby & Farmer (India) Limited, The Acme Manufacturing Co. Ltd., Leyland & Birmingham Rubber Co. (India) Ltd., India Rubber, Gutta-Percha & Telegraph Works Co. Ltd., and Bryan Smith & Co.

Orders for 300 tons of pig iron (A), 275 tons of pig iron (B), and 85 tons best hematite have been placed by the Egyptian State Railways Administration (Ref. E.S.R. 6.58), as follow :—Indian Iron & Steel Co. Ltd., items 1 and 2, total cost £1,782 10s. 0d., for delivery into lighters at Port Said ; and Barrow Hematite Steel Co. Ltd., item 3, total cost £289, delivery f.o.q. Gabbary.

Locomotives for South Africa

Information has been received by cable from South Africa that enquiries have been issued in Johannesburg this week for additional locomotives for the South African Government Railways. Tenders are invited for the supply of 20 class 15CA, 4-8-2 mixed-traffic tender locomotives with 5 ft. 0 in. (instead of the former 4 ft. 9 in.) diam. coupled wheels, and for 6 class 16DA, 4-6-2 express passenger engines with 5 ft. 3 in. diam. coupled wheels (instead of 5 ft. 0 in. as formerly). Both classes are to have a boiler pressure of 225 lb. per sq. in., the previous highest pressure in the Union being 215 lb. per sq. in.

Tenders are invited by the Bengal-Nagpur Railway, receivable by the Controller of Stores, Kidderpore, by June 11, for the supply of train lighting and other belting, leather straps and washers, m.s. bolts, nuts, rivets and washers, wire rope, indiarubber hose pipes and rings, cotters and split pins, and vacuum brake fittings.

Under the Additional Import Duties (No. 18) Order, 1934 (S.R. & O. 1934, No. 478) issued by the Treasury on the recommendation of the Import Duties Advisory Committee, the customs duties on iron and steel, which under the Additional Import Duties (No. 8) Order, 1932, are due to expire on October 25, 1934, are made chargeable without any limit of period. A White Paper (Cmd. 4589) containing the Treasury Order and the Committee's Report is published by H.M. Stationery Office.

The Egyptian State Railways Administration invites tenders, receivable at the Chief Inspecting Engineer's Office, 41, Tothill Street, London, S.W.1, for the supply of 3,550 brass burners for lamps.

Tenders are invited by the Minister of Transport, 6, Whitehall Gardens, London, S.W.1, for the supply of approximately 178,000 badges in Bakelite, Beetle, Traffolyte or other similar material for drivers and conductors of public service vehicles.

The Bombay, Baroda & Central India Railway invites tenders, receivable at the White Mansion, 91, Petty France, Westminster, S.W.1, by June 6, for the supply of locomotive, motor coach, carriage, and wagon axles, copper firebox plates, and laminated springs.

The Chinese Government Purchasing Commission invites tenders from British manufacturers for 50 all-steel covered wagons, 50 all-steel high sided open wagons, and 70 all-steel flat wagons, each of 40 tons capacity. Messrs. Fox & Mayo, 155, Dashwood House, Old Broad Street, E.C.2, are the consulting engineers concerned ; tender forms and drawings can be obtained from them.

Forthcoming Events

May 28 (*Mon.*).—Wimbledon and District Model Railway Club, at Messrs. Miller, Swan & Co., Alt Grove, St. George's Road, London, S.W.19, 8 p.m. "Model Electrical Control Equipment," by Mr. Moody.

June 2 (*Sat.*).—Permanent Way Institution (Manchester-Liverpool). Visit to Liverpool Overhead Railway. Jubilee Dinner at St. George's Restaurant, 5, Redcross Street, 6.30 p.m.

June 4 (*Mon.*).—Indian State Railways, at Café Monico, Shaftesbury Avenue, London, W.1, 7 for 7.30 p.m. Annual Dinner.

June 6–9.—Institute of Transport, at Leeds. Annual Congress.

June 9 (*Sat.*).—Stephenson Locomotive Society. Visit to Gas Light & Coke Co.'s Works, Beckton.

June 13 (*Wed.*).—Institution of Civil Engineers, Great George Street, London, S.W.1. Conversazione.

June 15-16.—Institution of Railway Signal Engineers, at Cardiff. Summer Meeting.

June 15–18.—Railway Students' Association (London), at Belfast. Annual Convention.

Exports of Railway Material from the United Kingdom in April

	Apl., 1934	Apl., 1933	Four Months Ending Apl., 1934	Apl., 1933
	£	£	£	£
Locomotives, rail	21,837	64,758	108,192	267,777
Carriages and wagons	71,391	19,762	232,531	162,889
Rails, steel	15,550	48,264	134,010	94,732
Wheels, sleepers, fishplates and miscellaneous materials	61,586	52,665	236,271	202,683

Locomotive and rail exports included the following :—

	Locomotives		Rails	
	Apl., 1934	Apl., 1933	Apl., 1934	Apl., 1933
	£	£	£	£
Argentina	—	1,527	6,216	746
Union of South Africa	—	—	15,915	32,450
British India	—	50,775	9,745	14

British and Irish Railway Traffic Returns

GREAT BRITAIN	Totals for 20th Week			Totals to Date		
	1934	1933	Inc. or Dec.	1934	1933	Inc. or Dec.
L.M.S.R. (6,940¾ mls.)	£	£	£	£	£	£
Passenger-train traffic...	573,000	406,000	+ 167,000	8,075,000	7,863,000	+ 212,000
Merchandise, &c. ...	455,000	430,000	+ 25,000	8,906,000	8,085,000	+ 821,000
Coal and coke ...	214,000	198,000	+ 16,000	5,033,000	4,737,000	+ 296,000
Goods-train traffic ...	669,000	628,000	+ 41,000	13,939,000	12,822,000	+1,117,000
Total receipts	1,242,000	1,034,000	+ 208,000	22,014,000	20,685,000	+1,329,000
L.N.E.R. (6,339 mls.)						
Passenger-train traffic...	337,000	260,000	+ 77,000	5,198,000	5,105,000	+ 93,000
Merchandise, &c. ...	300,000	286,000	+ 14,000	6,286,000	5,558,000	+ 728,000
Coal and coke ...	217,000	184,000	+ 33,000	4,835,000	4,317,000	+ 518,000
Goods-train traffic ...	517,000	470,000	+ 47,000	11,121,000	9,875,000	+1,246,000
Total receipts	854,000	730,000	+ 124,000	16,319,000	14,980,000	+1,339,000
G.W.R. (3,750 mls.)						
Passenger-train traffic...	234,000	178,000	+ 56,000	3,380,000	3,358,000	+ 22,000
Merchandise, &c. ...	185,000	177,000	+ 8,000	3,554,000	3,230,000	+ 324,000
Coal and coke ...	94,000	92,000	+ 2,000	2,112,000	2,054,000	+ 58,000
Goods-train traffic ...	279,000	269,000	+ 10,000	5,666,000	5,284,000	+ 382,000
Total receipts	513,000	447,000	+ 66,000	9,046,000	8,642,000	+ 404,000
S.R. (2,176 mls.)						
Passenger-train traffic...	340,000	257,000	+ 83,000	5,031,000	4,913,000	+ 118,000
Merchandise, &c. ...	66,500	64,000	+ 2,500	1,223,500	1,168,000	+ 55,500
Coal and coke ...	27,500	25,000	+ 2,500	679,500	622,000	+ 57,500
Goods-train traffic ...	94,000	89,000	+ 5,000	1,903,000	1,790,000	+ 113,000
Total receipts	434,000	346,000	+ 88,000	6,934,000	6,703,000	+ 231,000
Liverpool Overhead ... (6½ mls.)	1,082	1,115	— 33	21,489	21,064	+ 425
Mersey (4½ mls.) ...	4,062	3,636	+ 426	83,410	79,384	+ 4,026
*London Passenger Transport Board ..	545,300	—	—	23,205,000	—	—
IRELAND						
Belfast & C.D. pass. (80 mls.)	1,795	1,965	— 170	36,935	37,776	— 841
,, ,, goods	547	638	— 91	10,780	10,712	+ 68
,, ,, total	2,342	2,603	— 261	47,715	48,488	— 773
Great Northern pass. (562 mls.)	7,750	6,250	+ 1,500	150,650	82,150	+ 68,500
,, ,, goods	8,500	8,700	— 200	165,500	90,500	+ 75,000
,, ,, total	16,250	14,950	+ 1,300	316,150	172,650	+ 143,500
Great Southern pass. (2,158 mls.)	20,241	19,045	+ 1,196	389,741	378,344	+ 11,397
,, ,, goods	31,957	29,514	+ 2,443	648,609	621,241	+ 27,368
,, ,, total	52,198	48,559	+ 3,639	1,038,350	999,585	+ 38,765

Whitsuntide bookings, 1934. * 46th week.

Two New L.M.S. Posters.—Not everyone knows, though we imagine most railwaymen do, that whenever the "best people" of the universe elect to cross the Tweed they foregather, as a matter of course, at the far-famed Gleneagles Hotel. In future, the man in the street will not be able to plead ignorance in the matter, for the L.M.S.R. has just published a large coloured poster in which the important fact is emphasised. Imagine a background of greenish-blue, across which run, diagonally, three strong lines of letterpress—one of them, the word "Gleneagles," being in buttercup yellow. Top and bottom of these are a number of clever line drawings presumably meant to represent the particular type of person frequenting the hotel. In one corner is a kilted braw laddie (no doubt the scion of some noble house) desperately intent on bringing down a bird with his gun. Here and there are groups of golfers. Fishing, riding, driving and dancing also have their exponents. One of the quaintest little studies is that of a Royal and portly pair taking their ease on high stools at a cocktail bar. Equally good, too, is that depicting an indolent but Mae West-like fascinator surrounded by admirers, who quite obviously have just responded to her call to "come up and see me some time." The tour of the Royal Scot in America is somewhat ancient history by now, but the train, of course, is still the subject of much interesting comment and reminiscence because since its return to these shores it has been exhibited in many parts of the kingdom and visited and admired by countless thousands of people. *Apropos*, the L.M.S.R. is now publishing a large and particularly fine photogravure poster showing the famous British train drawn up alongside the Broadway Limited at Harrismith, Pennsylvania, in 1933. It is one of the best railway posters we have ever seen and there can be no doubt that it will evoke widespread admiration. A brief account of the American tour, which appears below the picture greatly adds to its interest.

British and Irish Railway Stocks and Shares

Stocks	Highest 1933	Lowest 1933	Prices May 23, 1934	Prices Rise/Fall
G.W.R.				
Cons. Ord. ...	55½	31	55½	−1
5% Con. Prefce. ...	109¾	69½	112½	+2
5% Red. Pref. (1950)	109¼	87½	109½	—
4% Deb.	108 15/16	99¼	108½	—
4½% Deb.... ...	108	100¾	110½	—
4½% Deb.... ...	116	106	117½	—
5% Deb.	128	117¼	128½	—
2½% Deb.... ...	65	60	69½	—
5% Rt. Charge ...	124	111½	127½	+1
5% Cons. Guar. ...	122	103	124½	+1
L.M.S.R.				
Ord.	29⅞	12⅛	25	−½
4% Prefce. (1923)	51	17	54½	—
4% Prefce. ...	72	33¼	80	+1
5% Red. Prf. (1955)	93	47¼	99	—
4% Deb.	103¼	89½	104	+½
5% Red. Deb. (1952)	114	105	111½*	—
4% Guar.	97¼	68⅝	99	—
L.N.E.R.				
5% Pref. Ord. ...	22½	7¾	19¼	−½
Def. Ord.	10¾	4⅛	9⅛	−¼
4% First Prefce. ...	65½	19⅝	70	+1
4% Second Prefc .	40½	12¼	37	−1
5% Red. Pref. (1955)	83¾	27	89	+2
4% First Guar. ...	94¾	58¼	96	—
4% Second Guar.	89¼	48	91	+½
3% Deb.	77	60¼	78	—
4% Deb.	02¾	80	103	+½
5% Red. Deb. (1947)	12	102½	108½	—
4½% Sinking Fund Red. Deb.	107½	98¾	106½	—
Southern				
Pref. Ord.... ...	71	27¾	79	—
Def. Ord.	24⅝	9⅝	26½	−1
5% Prefce. ...	107 11/16	74	111	+½
5% Red. Pref. (1964)	107¾	78⅞	111½	—
5% Guar. Prefce.	124¼	102¾	124½	—
5% Red. Guar. Pref. (1957)	115⅝	103½	115½	—
4% Deb.	107½	96¾	107	+½
5% Deb.	126½	114¼	126½	—
4% Red. Deb. 1962–67	107¼	100	107½	—
Belfast & C.D.				
Ord.	6	4	6	+1
Forth Bridge				
4% Deb.	99½	95½	101½	—
4% Guar. ...	98½	94	101½	—
G. Northern (Ireland)				
Ord.	7½	3½	5	—
G. Southern (Ireland)				
Ord.	28	16	20	—
Prefce.	24	12⅛	15⅛	—
Guar.	42	16¾	40	—
Deb.	60	30⅞	60	+½
L.P.T.B.				
4½% "A" ...	117⅞	112	119½	+1
5% "A"	127¼	119¼	128½	—
4½% "T.F.A." ...	111¼	106	109½	—
5% "B"	122½	114	123½	—
"C"	86¾	74½	78½	−1
Mersey				
Ord.	16¼	5	15	—
4% Perp. Deb. ...	83	63⅞	87½	—
3% Perp. Deb. ...	62	51	65½	—
3% Perp. Prefce....	50⅝	27	53½	—

* ex-dividend.

Railway Share Market

Stock and share markets resumed business on a moderate scale on Tuesday. Home railway stocks would have responded more satisfactorily to the week's traffic receipts had it not been for resumption this week of the discussions on the question of wages between the companies' representatives and the Trades Unions. As one Stock Exchange jobber described it, the home railway market is straining at the leash to respond to the great improvement in the trade position, but it is restrained by the uncertainties arising from the wages discussions, which tend to keep investors from buying stock. In some quarters it may perhaps be prudently considered that restraint is desirable, but the general view appears to be that stocks of the four big groups have not yet reflected the improvement in the national trading outlook in the same way as industrial shares. Comparison is being made between the ordinary and preferred stocks of the railways, which stand at the equivalent of a few shillings per £1 of stock, compared with the high market value placed on many dividendless ordinary shares in the industrial market where prospects of increased trade are being discounted. A sum of £125 is sufficient to-day to purchase £100 nominal of Great Western ordinary, £100 L.M.S. ordinary, £100 L.N.E.R. preferred ordinary, and £100 of Southern deferred stocks. As recently as 1929 these four stocks had an aggregate market value of £260. For investors who cannot afford to forego income temporarily on capital on the prospect of securing capital appreciation there is obtainable in the debenture class a yield in excess of the 3 to 3½ per cent. which is returned by gilt-edged stocks. A line of Southern 4 per cent. debenture stock was available in the market at 107¼ to give an income return of 3¾ per cent., whilst nearly 4 per cent. is obtainable from London & North Eastern 4 per cent. debenture stock, of which there is a line available at the moment. The higher yield of nearly 4½ per cent. is obtainable on Southern 5 per cent. preference stock, of which a moderate amount is on offer.

Foreign railway stocks have been slightly firmer since the Stock Exchange reopened on Tuesday. Argentine railway stocks tended to advance fractionally on the prospect held out of some improvement in the position of the companies resulting from the investigation which the Argentine Government is to make. Paraguay Central "D" income debentures had a further fall of a point to 10-13, although no business was recorded. Antofagasta ordinary was marked up fractionally, but the company's preference stock fell. Leopoldina ordinary changed hands at under 10. In other directions Ottoman Smyrna to Aidin first debentures fell a point to 41-44, with transactions at 42.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1933-34	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1933	No. of Week	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1933	Prices: Lowest 1933	Prices: May 23, 1934	Yield % (See Note)
				£	£		£	£	£					
South & Central America.	Antofagasta (Chili) & Bolivia	830	20.5.34	14,380	+ 4,380	20	257,270	192,730	+ 64,540	Ord. Stk.	26	11¾	22½	Nil
	Argentine North Eastern	753	19.5.34	14,400	+ 1,700	46	478,500	494,800	— 16,300	,,	14½	5	8	Nil
	Argentine Transandine	111	—	—	—	—	—	—	—	A. Deb.	55	40	50	8
	Bolivar	170	Apl., 1934	6,400	— 550	17	27,050	30,800	— 3,750	6 p.c. Db.	10	5	10	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	15	11	13	37/8
	Buenos Ayres & Pacific	2,806	19.5.34	135,000	+ 11,000	46	5,112,000	5,136,000	— 24,000	Ord. Stk.	26	97/16	11½	Nil
	Buenos Ayres Central	190	6.5.34	$99,500	— $17,400	45	$4,792,953	$4,664,339	+ $128,614	Mt. Db.	30	10	23	Nil
	Buenos Ayres Gt. Southern	5,085	19.5.34	205,000	— 23,000	46	9,318,000	9,459,000	— 141,000	Ord. Stk.	44½	21½	25½	Nil
	Buenos Ayres Western	1,926	19.5.34	70,000	— 10,000	46	3,145,000	3,147,000	— 2,000	,,	34½	15¾	20½	Nil
	Central Argentine	3,700	19.5.34	‡207,000	+ 21,000	46	7,730,000	8,347,000	— 617,000	,,	28½	15	17	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	18	10	10½	Nil
	Cent. Uruguay of M. Video	273	19.5.34	15,256	+ 1,192	46	755,400	697,732	+ 57,668	Ord. Stk.	20	8	14	Nil
	Do. Eastern Extn.	311	19.5.34	3,363	+ 302	46	156,936	150,674	+ 6,262	—	—	—	—	—
	Do. Northern Extn.	185	19.5.34	2,308	+ 97	46	87,838	90,239	— 2,401	—	—	—	—	—
	Do. Western Extn.	211	19.5.34	1,135	+ 225	46	72,340	60,666	+ 11,674	—	—	—	—	—
	Cordoba Central	1,218	19.5.34	44,000	+ 4,000	46	1,875,000	1,840,000	+ 35,000	Ord. Inc.	9¼	2½	5	Nil
	Costa Rica	188	Mar., 1934	20,747	+ 11	39	166,460	178,636	— 12,176	Stk.	29	20	26½	79/16
	Dorada	70	Apl., 1934	9,600	+ 2,800	17	41,100	26,400	+ 14,700	1 Mt. Db.	76½	68¾	95	6 6/16
	Entre Rios	810	19.5.34	16,200	+ 2,300	46	708,800	685,700	+ 23,100	Ord. Stk.	26½	9	14½	Nil
	Great Western of Brazil	1,082	19.5.34	6,000	— 1,300	20	173,400	238,200	— 64,800	Ord. Sh.	23/6	1/2	5/8	Nil
	International of Cl. Amer.	794	Mar., 1934	$552,711	+ $61,146	13	$1,523,085	$1,356,820	+ $166,265	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	1/2	1/16	1/8	Nil
	La Guaira & Caracas	223/8	Apl., 1934	3,965	— 1,910	17	15,245	27,240	— 11,995	Stk.	16	10	8½	Nil
	Leopoldina	1,918	19.5.34	17,351	— 2,004	20	433,635	466,641	— 33,006	Ord. Stk.	20¼	10	10	Nil
	Mexican	483	14.5.34	$247,400	+ $62,600	19	$4,427,500	$3,529,700	+ $897,800	,,	3	1/2	2½	Nil
	Midland of Uruguay	319	Apl., 1934	7,592	— 713	43	95,108	85,366	+ 9,742	Ord. Stk.	2	1	1½	Nil
	Nitrate	411	15.5.34	10,405	+ 2,709	19	115,388	42,336	+ 73,052	Ord. Sh.	7 8/6	1 1/16	3/8	Nil
	Paraguay Central	274	19.5.34	4,780	—	46	157,390	131,280	+ 26,110	Pr. Li. Stk.	72	49½	72	8 5/16
	Peruvian Corporation	1,059	Apl., 1934	49,967	+ 6,193	43	556,896	529,310	+ 27,586	Pref.	15¼	5	11½	Nil
	Salvador	100	12.5.34	1,822	+ 231	46	68,969	129,054	— 60,085	Pr. Li. Db.	70	66½	70	7 1/8
	San Paulo	153½	13.5.34	31,904	— 771	19	573,188	570,103	+ 3,085	Ord. Stk.	102	68	82	2 7/16
	Taltal	164	Apl., 1934	4,155	+ 1,965	43	60,935	36,175	+ 24,760	Ord. Sh.	1¾	3/4	1 13/16	5 1/2
	United of Havana	1,365	12.5.34	18,956	+ 238	45	873,296	874,642	— 1,346	Ord. Stk.	8	2	5	Nil
	Uruguay Northern	73	Apl., 1934	961	+ 61	43	11,507	14,593	— 3,086	Deb. Stk.	6	3½	5	Nil
Canada.	Canadian National	23,750	14.5.34	684,039	+ 150,335	19	11,504,914	9,394,959	+ 2,109,955	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	—4 p.c.	Perp. Dbs.	60½	38	68	5/8
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	99¾	85	101½	3 15/16
	Canadian Pacific	17,018	14.5.34	510,800	+ 111,600	19	8,310,000	7,106,400	+ 1,203,600	Ord. Stk.	22 1/8	11	16	Nil
India.†	Assam Bengal	1,329	14.4.34	29,940	+ 9,693	2	60,322	40,714	+ 19,608	Ord. Stk.	79	70	79½	3 5/6
	Barsi Light	202	28.4.34	3,967	+ 1,402	4	11,812	13,132	— 1,320	Ord. Sh.	10 1/3	70	100 1/2§	6
	Bengal & North Western	2,113	28.4.34	50,303	— 3,644	4	206,277	206,445	— 168	Ord. Stk.	292	240	281	5 11/16
	Bengal Dooars & Extension	161	28.4.34	2,732	+ 394	4	9,129	8,421	+ 708	,,	127	119	125	5 6/8
	Bengal-Nagpur	3,269	14.4.34	113,925	+ 13,287	2	230,175	196,076	+ 34,099	,,	97 1/4	83 1/2	101 1/2	3 15/16
	Bombay, Baroda & Cl. India	3,089	12.5.34	171,000	+ 225	6	998,400	1,000,350	— 1,950	,,	112	107	111½	5 6/8
	Madras & South'n Mahratta	3,230	21.4.34	120,525	+ 12,255	3	354,225	328,339	+ 25,886	,,	127	114¼	126½	7 1/8
	Rohilkund & Kumaon	572	28.4.34	11,266	+ 741	4	48,979	48,924	+ 55	,,	260	225	253	5 15/16
	South India	2,526	21.4.34	81,116	+ 5,226	3	235,399	231,019	+ 4,380	,,	119½	112	117½	6 13/16
Various.	Beira-Umtali	204	Mar., 1934	49,507	+ 6,256	26	290,974	234,727	+ 56,247	—	—	—	—	—
	Bilbao River & Cantabrian	15	Apl., 1934	1,787	+ 232	17	7,749	5,087	+ 2,662	—	—	—	—	—
	Egyptian Delta	621	30.4.34	4,936	+ 96	4	15,611	15,999	— 388	Prf. Sh.	13 1/32	1¾	2	Nil
	Great Southern of Spain	104	12.5.34	2,278	+ 185	19	41,655	40,759	+ 896	Inc. Deb.	4	3	5½	Nil
	Kenya & Uganda	1,625	Jan., 1934	34,690	+ 5,462	4	34,690	29,228	+ 5,462	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	53	33½	43½	8 1/16
	Mashonaland	913	Mar., 1934	88,871	+ 21,868	26	530,604	362,535	+ 168,069	1 Mg. Db.	91¾	42	94	5 5/16
	Midland of W. Australia	277	Feb., 1934	12,965	+ 445	34	108,714	104,268	+ 4,446	Inc. Deb.	89	70	97½	4 1/8
	Nigerian	1,903	7.4.34	30,336	— 573	1	30,336	30,909	— 573	—	—	—	—	—
	Rhodesia	1,538	Mar., 1934	154,590	+ 28,180	26	909,844	658,388	+ 251,456	4 p.c. Db.	98½	80¾	100§	4
	South African	13,180	28.4.34	492,070	+ 90,830	4	1,884,760	1,578,202	+ 306,558	—	—	—	—	—
	Victorian	6,172	Feb., 1934	735,677	— 53,515	34	5,849,572	6,175,377	— 325,805	—	—	—	—	—
	Zafra & Huelva	112	Mar., 1934	11,420	+ 994	13	34,675	31,396	+ 3,279	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16.
† Receipts are calculated @ 1s. 6d. to the rupee. ‡ Average rate of exchange for the week;—This year 31 19/64. Last year 41 7/8 § ex dividend.

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